

# JOURNAL

OF THE

## AMERICAN VETERINARY MEDICAL ASSOCIATION

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**Volume CXIV JANUARY 1949 Number 862**



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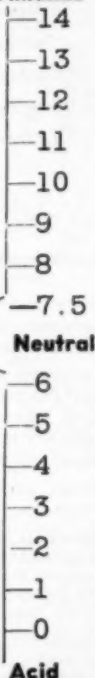


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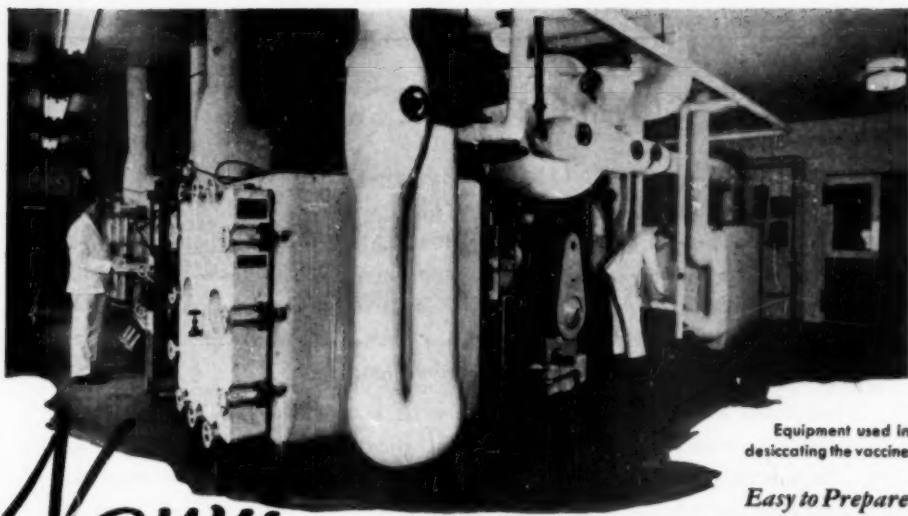
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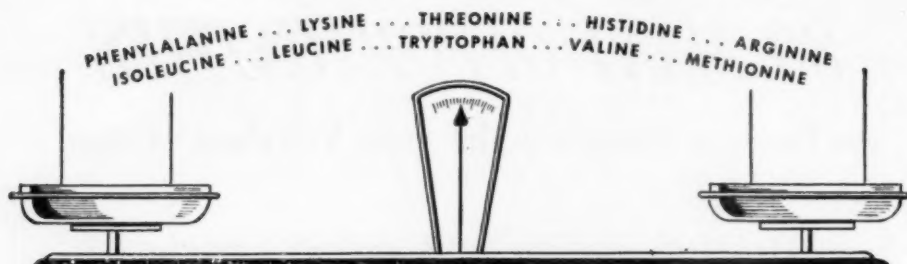
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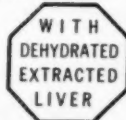
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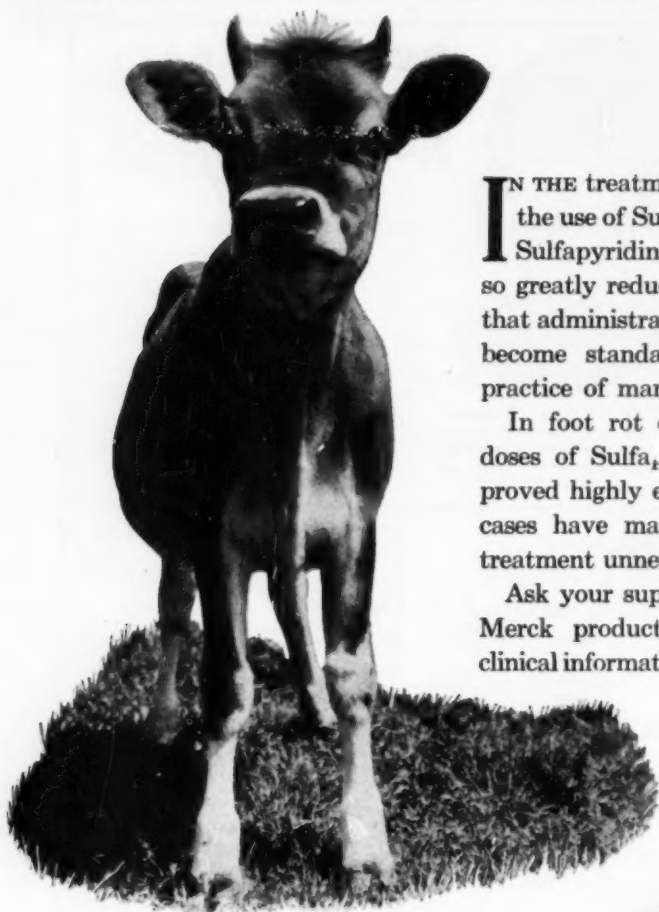
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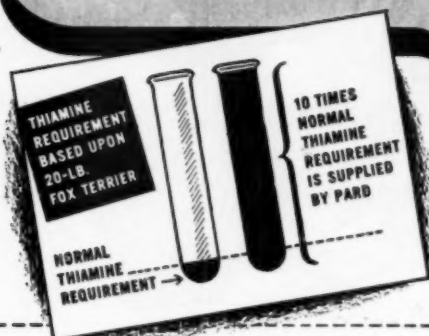
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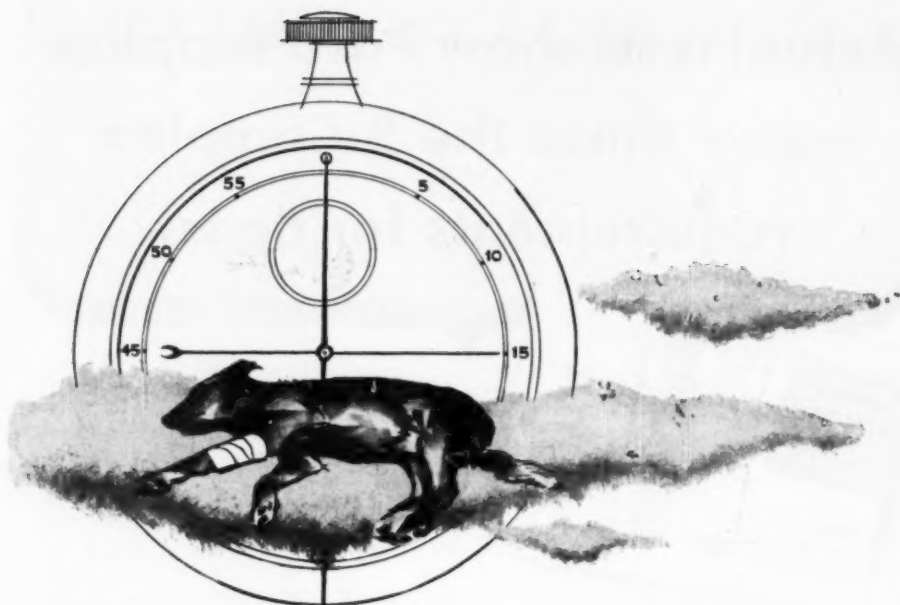
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<sup>1</sup> Stults, A. W., and Foley, E. J.: J. Am. Vet. M. A. 113: 68 (July) 1948.

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# AVMA ☆ Report

## *Veterinary Medical Activities*

★ AVMA officers and employees, President L. M. Hurt, President-elect C. P. Zepp, Sr., Executive Board Chairman W. R. Krill, Executive Secretary J. G. Hardenbergh, Assistant Executive Secretary R. C. Klussendorf, and Director of Professional Relations C. D. Van Houweling spent a busy week immediately following Thanksgiving attending meetings of such AVMA groups as:

Board of Governors, Executive Board, Council on Education, Research Council, and committees on Budget, Veterinary Services, and Nomenclature.

• • •  
★ Individually or in groups, they also attended meetings of:

American Society of Animal Production  
National Association of County Agricultural Agents  
National Research Council Committee on Veterinary Services  
Conference of Research Workers in Animal Diseases in North America  
14th International Veterinary Congress Committee  
BAI Conference on Research on Bovine Brucellosis

• • •  
★ Dr. B. J. Killham, East Lansing, has been chosen by his Michigan associates to serve as General Chairman of the 86th Annual AVMA Convention in Detroit, July 11-14, 1949. Drs. F. P. Egan, Farmington, and L. H. LaFond, Detroit, will assist as Vice-Chairmen. Dr. C. F. Clark, Lansing, was selected as General Secretary.

• • •  
★ An editorial in *Arkansas Gazette* (Oct. 13, 1948) discusses the need for, and the method of getting, veterinary service for livestock owners, and stresses in this connection "that high professional standards are maintained through proper licensing procedure."

• • •  
★ A letter was addressed to the editor of *Time* in response to a statement (Dec. 6, 1948) to the effect that medical schools are "sinking to a veterinarian level by studying man as if he were a horse instead of a human being with a spirit." Attention was directed to the outstanding work being done by the veterinary profession and to the fact that those who would enter this profession must climb, not sink.

• • •  
★ Prof. C. G. Bradt, N. Y. State College of Agriculture, Ithaca, wrote "Pulling Together for Healthy Herds", which was published in *Hoard's Dairyman* (Nov. 10, 1948). The AVMA commended him for the manner in which he discussed the problem of gaining full coöperation between livestock owners and their veterinarians.

• • •  
★ The Committee on Journal is considering the advisability of publishing the proceedings of the annual convention as a single, complete document. Comment, for or against, is invited.

• • •  
★ Mr. L. N. Eldred, Associated Press correspondent, came to the AVMA office for a conference on hyperkeratosis, and wrote a story which was widely used in daily papers from coast to coast.

• • •  
★ The Executive Board voted, after hearing reports from all cities which had issued invitations, to hold the 1950 meeting in Miami Beach, Fla.







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1. Collins, J. W., J.A.V.M.A., Oct. 1948

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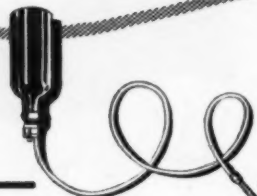
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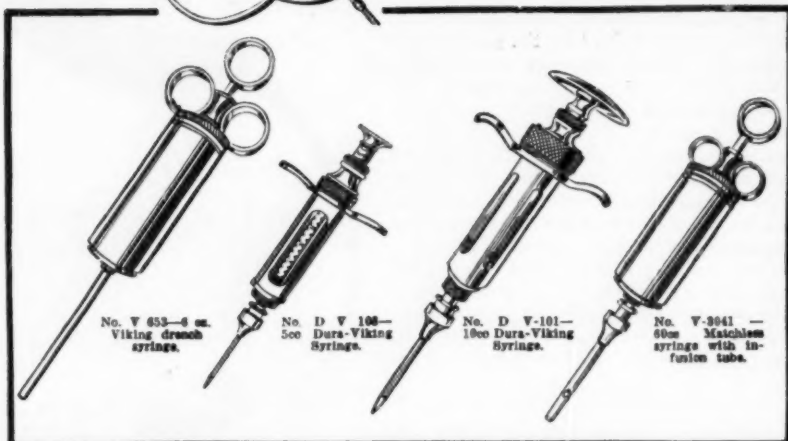
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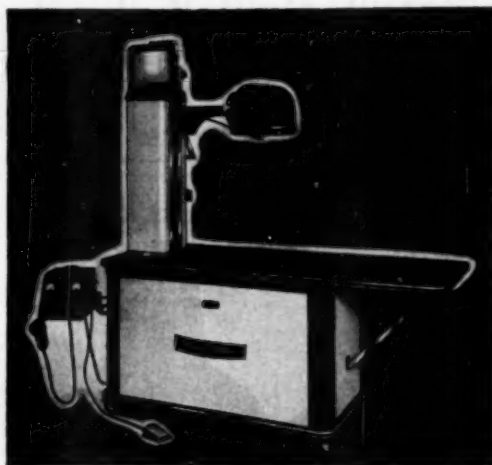
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## Psychoneurosis—A Veterinary Problem

LLOYD C. MOSS, D.V.M.

Fort Collins, Colorado

IT HAS always been amazing to historians how resistant people are to new ideas and concepts. Down through the ages, Hippocrates, Aristotle, Darwin, Pasteur, Jenner, and many others<sup>3-14</sup> who have advanced the frontiers of science have had to withstand the ridicule and scorn of their professional colleagues and of the public. The same was true of Sigmund Freud,<sup>7</sup> the great clinician who, by his dynamic concept of man as a highly intelligent animal, has laid the foundation for modern psychiatry.

The word psychiatry is from the Greek—meaning “mind healing.” Probably not a good definition but something with which to start. It is imperative that the veterinary profession should become cognizant of this new science in the field of medicine if it is to maintain the respect and admiration of the medical profession. We should know and appreciate the fact that the lower animals, the domestic animals which we treat, under certain conditions, react in much the same manner as man. This behavior is, of course, constricted by the intelligence and perceptive powers of the animals.

The veterinarian, by striving for a more complete understanding of behavior and neurosis in the animals he treats, may render a service to society and his clientele. It may be possible that the United States, as the greatest pet-owning nation in the world, also has a claim on the doubtful honor of being the most neurotic nation. We have been told that 1 man out of 7

inducted into the armed service was rejected for mental instability—what the ratio was in other nations has not, to my knowledge, been published. We do know that our divorce rate has been rising rapidly and that it is now approaching a rate of 50 per cent of the marriages. What will happen to the children of broken homes is difficult to surmise, but it is known that the lack of home security is the beginning of much maladjustment and neurotic behavior.

Many of these victims of broken homes find companionship with animals. Certainly, many find a constancy of affection from a dog which has been lacking in his family relationship.

We are aware of the deep emotional bond of a blind man to his seeing-eye dog and we are quick to appreciate this relationship; but are we as sympathetic and understanding to our clients who may be emotionally blind? We should realize that almost half of the people who consult physicians for treatment are suffering from psychogenic disease—disease which has had its origin in anxiety, frustrations, and conflict, a result of failure to adjust to the problems of living. When we are able to discern a personality difficulty in our clients, we may, with some insight and intuition, endeavor to direct them to physicians who have psychiatric training, or to psychiatrists; thus, a severe neurosis or psychosis may be avoided.

It is always easier to prevent a disease than to treat it after it has been manifested by various pathologic changes. It is estimated that 1 out of 13 persons are in need of psychiatric treatment and that 1

Presented before the Section on Small Animals, Eighty-fifth Annual Meeting, American Veterinary Medical Association, San Francisco, Calif., Aug. 16-19, 1948.

out of 19 will be treated in an institution for mental disease. It would seem highly advisable that we, in veterinary medicine, acquire a better understanding of psychiatric medicine, as the physician and veterinarian progress simultaneously.

Research, which has been carried out on animals in studies of behavior and neurosis would indicate that instruction in this field should be included in the curriculum of all veterinary colleges. The knowledge goes beyond the experiments of Pavlov.<sup>10</sup> Many films are available through the Audio-Visual Aids Library at Pennsylvania State College. Some of these films are used in medical colleges for instruction in general, abnormal, and comparative psychology and in psychiatry. Most of the experiments have been carried out on rats, cats, dogs, monkeys, chickens, goats, and pigs. An apparatus was developed by Dr. J. H. Masserman (M.D.) at the University of Chicago and Northwestern University for the observation of behavior in cats.<sup>1, 2</sup>

It required some time to develop the feeding responses to the various signals which were arranged for the animals to activate in order to procure food. The animals first learned to feed from the open food box—the incentive being hunger. Later, they were trained to raise the lid of the box to feed, then to respond to more complex signals. Pellets of food were automatically deposited into the food box on a sensory signal, a light or bell signal.

A switch, which the animal learned to activate, was placed in various places within the experimental chamber. The cats learned that unless they activated the switch, which would turn on the light, no food would be delivered.

The switch was placed on each side of the glass barrier. Some learned to press it with a foot, others would use the nose or body. The switch was also placed on the side of the chamber and the animal learned to activate it by rubbing against, or pressing, it with the paw or nose. To produce a neurosis, the feed box was provided with an air blast device which would deliver a definite amount of air. The grid floor was connected to a fence shocker which could also be used to provide a mild electric current at the moment of food taking if so desired.

There are two species of animals which the veterinarian recognizes as the prima

donnas of the animal kingdom—the Thoroughbred horse and the high-producing dairy cow. Many observations have been made on these animals but, due to physical factors, it has been obviously difficult to subject them to the rigid conditions of laboratory control. A great adjustment is required of these animals as they leave the placid environment of the pasture, i.e., the horse when he is placed in training and the heifer after she has calved and is placed in the dairy herd. Many horse trainers and dairymen endeavor to make this transition as smooth, pleasant, and normal as possible. It would seem highly desirable that veterinarians with some knowledge of animal psychology undertake studies which would be of incalculable value to the breeder. We hope that the American Veterinary Medical Association may devote some of its funds from the Research Foundation to research in this field.

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**Fewer Farmers.**—The trend, says *Nation's Business*, points to a decrease of 4,000,000 in the farm population in the next twenty years—fewer brogans and more white collars.

## National Isolation in Horse Breeding

Whatever may be the merits of isolation among nations, it hasn't worked too well in horse breeding. Thirty-five years of insulating Thoroughbreds against alien blood in England has slowed down their speed. French and American horsemen, international in spirit, have been winning quite a few of England's best races in recent years. In the opinion of *The Blood Horse* which knows everything worth knowing about Thoroughbreds, the cause of the declining speed is the long refusal of the English Jockey Club to register alien blood in its sacred Stud Book. As the story goes, the glory and the cash linked to historic classics of the turf are being carried off by allegedly impure strains from over the sea, to the embarrassment of the straight-laced exponents of national isolation in horse breeding.

Anyhow, the exclusive Club has appointed a committee to sally forth and do something about the decreasing speed of the English Thoroughbreds, so closely guarded against the "impurities" of foreign strains. How come?

For the sake of the sport of the kings, may the august committee find the way to resolve the genetic problem involved. Know ye that heredity plays cunning tricks on one who simply pulls the strings of its marionettes. Here is a case wherein the contingencies of genetics have come face to face with an imminent fact—slower horses—in a short thirty-five years of barring new blood from the veins of hyperpurified livestock.

In slamming the door on famous French horses and such American specimens as Man o' War, Whirlaway, Omaha, Assault, and the like, the racehorse circle of England (in good faith) flouted a quirk of heredity familiar to the breeders of purebred livestock in general. The pay off is not only the chagrin of losing races but also the prospect of increasing economic losses in the future. On the long run, pedigrees are poor substitutes for performance—in the auction ring. In other words, when pedigrees are no longer certificates of performance, they are headed toward excommunication.

Unimpressed by the proposals to (1) trust everything to the guarded English pedigrees, or (2) to admit the French

strains with American backgrounds that are winning the races, but slam the door on American "impurities," *The Blood Horse* invites the losers to join the winners, with the hackneyed quotation from practical politics, namely: "If you can't beat 'em, jine 'em." On the other hand, geneticists, knowing that nothing more than an elementary problem of breeding purebred livestock is implicated, are wondering why the elite guardians of English Thoroughbred blood do not go into a huddle with her breeders of cattle and pigs and sheep and dogs, none of whom have to apologize for the quality of their products.

National isolation in horse breeding, prosaic as the comparison may seem, is a flair of the vanishing idea that a man or an animal or a nation with an exclusive pedigree is entitled to an accolade regardless of performance.

## Human Respiratory and Nervous Infections Linked with Avian Pneumoencephalitis

A cooperative medical, public health, and veterinary study (*Am. J. Public Health*) suggests the probability that a poliomyelitis-like, mild central nervous system infection, especially in children, and an influenza-like disease in adults may be contracted from chickens afflicted with avian pneumoencephalitis (Newcastle disease). It also seems probable that once the human infection gets its start in a locality, epidemics may be engendered by man-to-man transmission, without further exposure to diseased birds.

Beatrice F. Howitt, L. K. Bishop, and R. E. Kissling, all of the U. S. Public Health Service, found neutralizing antibodies of avian pneumoencephalitis in the blood of various groups of children and in some adults suffering from a mild central nervous system illness of short, nonfatal course. Headache, fever, vomiting, and certain neurologic signs were the usual symptoms. There was no residual paralysis. The cases under study all occurred in Alabama and Tennessee, but comparable epidemics elsewhere, of vague or unknown origin, suggest that the trouble is not confined to this southern area. Infected chickens were in association with several cases.

After studies on the virus were begun at the Montgomery, Ala., laboratory of the

USPHS, an acute, influenza-like disease developed in six laboratory employees. Antibodies in high titer against avian pneumoencephalitis virus were found in the serums of all of these workers, as well as in several employees who did not become visibly ill.

Writing in the *American Journal of Public Health* (38, Sept., 1948: 1263-1272), the authors called attention to the fact that the neurologic signs observed predominantly in children and the influenza-like signs in adult cases can be compared age-wise with the nervous symptoms seen in immature birds and the respiratory sickness of older birds.

Previous reports on animal-to-man infection with this virus all concerned eye manifestations. Accidental entrance of live virus into the eye was followed by conjunctivitis, headache, chills, and general discomfort. Virus was recovered from the conjunctival fluid, and antibodies were present in the serum of the patients, thereby furnishing proof that avian pneumoencephalitis virus was the causative agent.

In contrast, virus was not isolated from any of the present series of nervous and respiratory cases—a factor that prevented conclusive diagnosis. However, results of the serum neutralization tests gave firm support for indicting the "P-E" virus.

The most recent official count shows that this disease has now spread through flocks in 44 states, not to mention that it also has invaded Canada in recent months and made a reappearance in Britain after an absence of thirteen years, while continuing its long-time ravages in flocks of many other nations.

This report, and the fact that veterinary scientists at the University of California have proved that avian pneumoencephalitis can be spread through the air, emphasizes the public health implications of this new finding.

Tests by Cole, of Cornell University (*Poult. Sci.*, July, 1948), add confirmation to reports by others that sulfonamides are ineffective in eliminating *Salmonella pulchrum* from infected adult birds. Not only did experimental birds continue to carry specific agglutinins in their blood after prolonged sulfonamide feeding, but many of them died of the disease. Sulfamerazine, sulfadiazine, and sulfaguanidine were used.

### Brucella M Vaccine

The mucoid phase of *Brucella* growth appears in the dissociation of this organism.<sup>1</sup> One mucoid phase of *Brucella suis*, used as a vaccine and injected into guinea pigs, produced a high degree of immunity against all three *Brucella* species.<sup>2</sup> A preliminary report of the use of this vaccine in cattle is now available,<sup>3</sup> and is herewith condensed for general information.

Pregnant heifers were injected with large numbers of organisms of this mucoid growth phase, at one month, four months, and five months following conception. Others were similarly injected before service and reinjected after conception. All 7 of the heifers gave birth to normal calves, and none had a retained placenta. Mucoid phase organisms were not recovered from the placenta or the milk in any instance, and all 7 heifers became negative to the agglutination test within ninety days after the last injection.

Having shown the vaccine to be incapable of producing a progressive type of infection, the next step was to test its immunizing value. The value of controlled experiments involving large numbers of animals was recognized, but limited facilities ruled out such procedure. Because many vaccines and bacterins have been approved by recognized health agencies for use in human epidemics without subjecting them to controlled experiments, the M vaccine was tested for immunizing value by injecting it into 1,127 animals in 24 herds in which brucellosis had been present for but a short time. Whereas the infection usually spreads rapidly and widely in herds of this type, only 23 animals became reactors and 25 others became suspects within one year among the 772 negative animals present at the time of vaccination. Most of these appeared within four months after vaccination, and may be presumed to have been harboring infection when vaccinated. Regression of titer in animals positive or suspicious at time of vaccination was at approximately the same rate as might be expected had they been left unvaccinated.

Use of *Brucella* M vaccine in herds which have harbored *Brucella* for a year or more, and in herds free from infection, has been limited because results are so difficult to evaluate. In those instances where it has been tried, results have been favorable.



The authors conclude that the total weight of cells is more important than the number of viable cells in determining the effectiveness of vaccination. Dosage varied from 2.5 to 5.0 mg. of cells, and injection made behind the scapula was found to cause less swelling which disappeared more rapidly than when made in front of the scapula. There was a slight, but not significant, reduction in milk flow following vaccination.

The vaccine is being widely used on an experimental basis by many Michigan practitioners. All are required to file reports regularly, and a more comprehensive statement will be issued when a significant volume of information has been accumulated.

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### The Rôle of Microbes in Alimentary Poisonings

Once upon a time, the prandial catastrophes that suddenly strike the family circle or rollicking banqueters were attributed principally to the toxins of specific organisms of the genus *Salmonella*. The preponderant percentage was charged to the toxin of Aettrycke's bacillus (*Salmonella typhimurium*) or to that of Gaertner's bacillus (*Salmonella enteritidis*). *Proteus*, spp., *Escherichia coli*, *Shigella dysenteriae*, *Staphylococcus aureus*, and *Streptococcus*, spp., in time, came in for a share of the blame on being isolated in given outbreaks of meat-food poisonings. But, in no case could the blame be attached exclusively to the action of their respective toxins. It was quite generally realized that the phenomena were due to a more complex mechanism than the mere elaboration of given toxins by a given organism.

In the bacteriological study of hundreds of such intoxications in recent years, Névot (*Bull. Acad. Vét.*, Nov., 1947)<sup>1</sup> found that a large number of aërobes and anaërobes enter into the genesis of alimentary poi-

sonings by producing changes in the contaminated food responsible for the alimentary and systemic disturbances associated with the accident. The organisms of the contaminated food, coöperating with the flora of normal digestion, disintegrate proteins into toxic amides of which histamine, tyramine, tryptamine, and methylamine are examples. Sometimes the toxic agent may have formed in the food at the time of ingestion; the food may be toxiphoric, or it may simply furnish the medium for the causal organism. That is, the good is toxigenic, not toxic, and that explains why the attack occurs from one to ten hours after the food is eaten and also why the result differs in the different persons involved. The digestive metabolism may check the toxic process in some individuals and intensify it in others. That sharply distinguishes food poisoning from chemical toxicosis where the dose ingested more definitely determines the degree of intoxication. The "corruption theory" of food poisoning is in accord with the clinical facts, the author (*loc. cit.*) points out, and, moreover, accounts for the relative harmlessness of the filtrates of the microbes implicated.

To the food hygienists of veterinary medicine, the facts stated change the preventive approach—the prophylaxis. The proteolytic rather than the direct toxic properties of the microbes concerned must be considered, especially of those not belonging to the *Salmonella* group. The microbes to be eliminated from meat products are those capable of attacking the protein molecule, of liquefying gelatin, of producing indol, and of elaborating hydrogen sulfide. Difficult as it may be to detect the presence of these, the fact remains that therein lies the prophylaxis of alimentary intoxications.

<sup>1</sup>Névot, Armand: The Rôle of Germs other than *Salmonella* in Alimentary Poisonings of Meat Origin (title translated). *Bull. Acad. Vét. d. France*, 20, (Nov., 1947): 433-436.

To offset the expected shortage of beef, mutton, and veal in 1949, the USDA has urged the swine breeders to increase their production a minimum of 10 per cent, starting with the fall crop of 1948. Department officials urged a pig crop of 34 million this fall, or 3 million more than that of 1947, in order to insure the 10 per cent increase for 1949.

# SURGERY & OBSTETRICS

AND PROBLEMS OF BREEDING

## A New Antibacterial Surgical Dressing Preliminary Clinical Report

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MODERN progressive veterinary medical practice is constantly confronted with new problems. One of the most difficult is the handling of traumatic lesions and various surgical and surface infections. These make up a large part of the veterinarian's daily work, and better results are being obtained because of more effective therapeutic agents now available.

Within the past fifteen years, one of the greatest medical advances has occurred—the discovery of chemotherapeutic agents with powerful antibacterial activity, which are comparatively harmless to tissues. Among these are the numerous sulfonamides and antibiotic agents. However, even these remarkable drugs have not met all of the specifications for the ideal antibacterial agent for topical use. Some are relatively unstable, especially in solution, being also labile at body temperature and at the hydrogen ion concentration of wounds, or are destroyed readily by certain bacteria. The action of a few is markedly inhibited in the presence of organic matter as found in wound exudates. Also, development by bacteria of fastness to the antibacterial agent may occur during treatment.

Such factors indicate the need for other antibacterial agents for topical use, prefer-

ably of widely different chemical composition and possessing stability and activity against a wide range of organisms.

This article reports preliminary clinical studies with furacin,\* a nitrofur which provides many of the properties of the ideal surgical dressing. Observations were based on extensive studies made in the human field<sup>1-3</sup> which established that furacin is:

- 1) Effective in the treatment of infected surface wounds, as evidenced by rapid clinical improvement, correlated with a reduction in the bacterial flora;

- 2) Noninjurious to healing tissues, without delaying wound healing;

- 3) Water-soluble, it dissolves in pus, exudates and blood, directly contacting infected areas without occluding small openings to interfere with drainage;

- 4) Does not cause maceration of tissues or form a thick, insulating coating or undesirable scab;

- 5) Readily removed without disturbing injured tissues.

These studies with furacin, in the human field, established its marked bactericidal effect against gram-positive, gram-negative, and other organisms. Shipley and Dodd<sup>4</sup> show results of treatment of lesions with

\*Manufactured by Eaton Laboratories, Norwich, N. Y.

TABLE I—Lesions Treated with Furacin

Diagnosis	Cases (No.)	Results			
		Excellent	Good	Questionable	None
Diabetic gangrene .....	8	..	6	2	..
Compound fracture .....	2	1	..	1	..
Chronic osteomyelitis .....	3	..	..	1	2
Loss of skin—burns and avulsion .....	8	3	3	2	..
Various skin lesions with secondary infection..	28	14	12	2	..
Abscess .....	6	1	3	1	1
Wounds .....	10	2	5	1	2
Ulcers .....	15	2	10	3	..
Epidermophytosis .....	6	3	2	..	1
Acne vulgaris .....	4	..	3	..	1
Total .....	90	26	44	13	7



furacin in 90 cases of superficial infections (table 1).

The lesions of the patients mentioned in table 1 were carefully cultured before and during treatment, and the results are reported table 2.

The authors made this observation: "Except for this infrequent occurrence of *Escherichia coli*, these findings are in good agreement with all reports on the pathogenic flora of civilian wounds and lesions."

Practically the same results were reported by Downing<sup>5</sup> from the treatment of 122 cases of miscellaneous surface infections with furacin soluble dressing (table 3).

#### FURACIN IN VETERINARY MEDICINE

From the data in these reports, it seemed logical that furacin might be equally effective and useful in veterinary practice. Among the lesions in which the writer used it, there were 20 otitis externa, 16 traumatic and other lesions of the feet, 6 infected nails, and many others.

**Ear Lesions.**—Examples of the more chronic ear lesions are: Eight ears of dogs with otorrhea of from three months to two years duration, all of which had been treated with penicillin, sulfonamide ointments, powders, and other medicaments, and surgery advised in most of them. Two of these ears had a macerative dermatitis (cellulitis) with the seropurulent foul discharge common in such cases. One of this group was an old cat with much fibrous tissue development in both ear canals. Furacin liquid dressing was used daily in all these ears, and twice daily in the most severely infected. Relief of irritation and disappearance of discharge resulted in all but 1 case. These chronic lesions did not

disappear, but relief of the disturbing symptoms and discomfort to the animal was definitely established. Follow-ups on most of these, over the three months since treatment started, showed the early improvement maintained.

A 6½-year-old Kerry Blue Terrier was brought in with the lower half of one ear severely burned (second degree). The injury, which had occurred three days previously, was edematous, sloughing, and painful, with the animal in much distress. Furacin gauze was applied directly to this area, with immediate comfort to the animal. The owner desired home care, and this was done with furacin gauze, with complete recovery in about four days. This case is one example of many where furacin has shown its properties of being well tolerated with local relief and tissue stimulation.

**Foot Lesions.**—Veterinarians are familiar with the acute problems of handling lesions of feet and injured nails. We have dressed 11 feet with furacin, ranging from torn nails to painful skin areas, all badly infected. An example was an adult Collie with the two middle toenails of one hind foot torn out, severe bruising of adjacent soft tissues, and profuse bleeding. It was so painful that a sedative was necessary to clean the wound at the first dressing. Furacin gauze was applied under bandage and changed daily. Immediate improvement was shown, with three daily dressings being necessary for complete recovery.

**Use of Furacin on Cats.**—In a 3-month-old kitten, an interdigital abscess of several days' duration was opened and curetted, under general anesthesia. Furacin gauze

TABLE 2—Clinical Susceptibility of Strains of Bacteria Isolated from Lesions to Furacin Soluble Dressing Measured by Bacteriologic Culture Results

Organism	Total strains (No.)	Total (No.)	Reduced (%)	Total (No.)	Negative (%)	Total (No.)	Not reduced (%)	Total No. data
<i>Staphylococcus aureus</i> .....	29	14	93.0	12	50.0	1	6.6	14
<i>Staphylococcus albus</i> .....	35	21	87.5	14	58.0	3	12.5	11
<i>Staphylococcus hemolyticus</i> .....	25	13	92.9	8	57.0	1	7.1	11
<i>Staphylococcus autemolyticus</i> .....	7	3	75.0	1	25.0	0	0	4
<i>Pseudomonas pyocyaneus</i> .....	10	5	62.5	5	62.5	3	37.5	2
<i>Proteus vulgaris</i> .....	13	6	60.0	4	40.0	4	40.0	3
<i>Escherichia coli</i> .....	3	2	66.6	2	66.6	1	33.3	0
<i>Aerobacter aerogenes</i> .....	11	3	75.0	3	75.0	1	25.0	7
<i>Diphtheroid</i> .....	28	10	62.5	10	62.5	6	37.5	12
<i>Aerobacter fecalis</i> .....	4	4	100.0	4	100.0	0	0	0
<i>Pseudomonas fluorescens</i> .....	5	4	100.0	3	75.0	0	0	1
<i>Micrococcus luteus</i> .....	1	1	100.0	1	100.0	0	0	0
<i>Micrococcus flavus</i> .....	1	1	100.0	1	100.0	0	0	0
Total .....	172	87	81	68	63	20	19	65

was applied directly to the exposed tissues and bandaged. Changed daily four times, the result was a surgically clean granulating wound which required no further care. An infected foot, in another case, differed from the preceding in that through-and-through gauze drains were placed with considerable hemorrhage. Furacin liquid dressing was used under bandage with constant improvement, the drains being removed in three days, with uneventful recovery in four days. These are representative of our use of furacin in infected wounds of 5 cats. It was well tolerated, nontoxic, cleared up infections, was active in tissue fluids, and aided healing. As is well known, the reaction of cats is a severe test of a medication used.

**Furacin Not Toxic.**—A striking example of furacin's effectiveness against *Staphylococcus aureus* occurred in a 6-month-old French Poodle which came to us with a temperature of 105.0 F. of two days' duration, with the usual symptoms of acute infection. Permanent distemper protection had been given, and no definite sign of the cause was present. Antibiotic agents, sulfonamide drugs, and supportive treatment were given with no improvement, and three days later, firm edematous swellings developed along the under surface of the chest

Furacin in gauze strips was applied directly to these infected areas under bandage and changed twice daily. At the first changing (12 hours), the temperature had subsided and was normal twenty-four hours later. This improvement was evidently not due to the drainage from the affected area alone, inasmuch as the improvement in the animal was established before the affected subcutaneous areas changed from the solid edematous state.

The improvement was evidently brought about largely by the medication. An absence of toxicity of furacin was shown here since generous amounts of the medication were applied directly to large surface lesions from which absorption into the vascular system was easily possible. The immediate, steady improvement was evidently not hampered by any medicinal toxicity.

#### DISCUSSION

Furacin is particularly desirable for use in the veterinary field because of its (1) soluble form (solid) and (2) liquid form. The furacin gauze strips used are prepared by placing the solid form on gauze strips, which are then placed on top of each other in a metal receptacle, and warmed. The solid form, when heated, impregnates the layers of gauze which are then autoclaved, or sterilized, at 15-lb. pressure for forty-five minutes in a pressure cooker. These gauze strips provide a highly antibacterial dressing, easily applied to the wound, with furacin flooding all crevices and small pockets of the area treated. The gauze is easily removed as it does not adhere to the traumatized or granulating surface. The liquid form is especially desirable where a liquid, with the properties mentioned, is indicated.

#### CONCLUSIONS

The clinical use of furacin on surface lesions shows it to be:

- 1) Highly antibacterial to gram-negative and gram-positive organisms;
- 2) Nontoxic, even to cats;
- 3) Noninjurious to granulating tissues;
- 4) Easily soluble in tissue fluids, making it accessible to pus pockets; blood serum, and other foreign material in the wound, does not reduce its effectiveness.

#### References

- <sup>1</sup>Snyder, M. L., Klehn, C. L., and Christopherson,

TABLE 3—Surface Infections Treated with Furacin

Disease	Total cases	Excellent	Results		
			Good	Questionable	None
Cellulitis .....	1	..	1	..	..
Infectious eczematoid dermatitis .....	26	6	14	1	5
Ecthyma .....	12	..	9	1	2
Impetigo .....	26	..	20	3	3
Sycosis vulgaris ..	3	..	2	1	..
Furuncle .....	3	..	3	..	..
Hypostatic ulcer ..	25	4	14	2	5
Diabetic ulcer ....	3	..	2	1	..
Postoperative ulcer .....	6	4	2	..	..
Decubitus ulcer ...	3	..	2	1	..
Traumatic ulcer...	14	4	9	..	1

and abdomen, and right side of the chest. These developed rapidly, becoming thicker, with the characteristic pitting of subcutaneous edema, but not painful. With sterile exploratory needle, no pus was found but only a thick serous discharge which yielded a pure culture of *Staph. aureus*. Four days after entry, the skin over these lesions, now approximately 12 in. by 4 in., sloughed off leaving a spongelike, thick mass of subcutaneous tissue.

J. W.: Effectiveness of a Nitrofurantoin in the Treatment of Infected Wounds. I. Preliminary Report. *Milit. Surgeon*, 97, (1945):380-384.

<sup>2</sup>Dodd, M. C., Hartman, F. W., and Ward, W. C.: The Local Application of Nitrofurantoin Compounds with Special Reference to Use on Wounds. *Surg. Gynec. and Obst.*, 83, (1946):73.

<sup>3</sup>Meleney, F. L., Johnson, B. A., Pulaski, E. J., and Colonna, F.: Treatment of Mixed Infections with Penicillin. *J. Am. M. A.*, 136, (1946):121.

<sup>4</sup>Shipley, E. R., and Dodd, M. C.: Clinical Observations on Furacin Soluble Dressing in the Treatment of Surface Infections. *Surg. Gynec. and Obstet.*, 84, (1947):366-372.

<sup>5</sup>Downing, J. G., et al.: The Use of 5-Nitro-2-furaldehyde Semicarbazone in Dermatology. *J. Am. M. A.*, 133, (1947):299.

When attending the parturient sow, it is well to know whether the cervix is open. Only when this is the case should lentin be used to stimulate uterine contraction.—*Dr. H. C. H. Kernkamp, Minnesota.*

### Seasonal Effect on Fertility

The effect of length of day on bovine fertility has been studied. During the months when days are long, fertility is high. When the days are short, fertility is low. Variation is the greatest in old and in young animals. It is believed that the difference is caused by the effect of light on the pituitary gland and, through it, on other endocrine organs.—*Dr. G. W. Salisbury, Illinois.*

### Treatment of Burns

As an aid in removing slough from second degree burns painlessly and without destruction of islands of living tissue, it is recommended (Mattocks and Lazier, Southern Research Institute, Birmingham, Ala.) that an ointment, consisting essentially of methylcellulose and sorbitol containing 6 to 10 per cent of pyruvic or phosphoric acid, be used.

### Curare-like Action of Thiamin

A rapid intravenous injection of 50 mg./kg. or more of thiamin hydrochloride into dogs causes respiratory paralysis, hypotension, bradycardia, and vasodilation, all of which eventually disappear if artificial respiration is maintained.

D-tubocurarine produces effects which closely resemble those of thiamin.

Both drugs stop the contractions of the toe resulting from stimulation of the sciatic nerve, without decreasing the contraction on direct stimulation. Smith, Foa, and Weinstein report that (*Science*, 108, Oct.

15, 1948:412) this curare-like action of thiamin probably explains many of the results previously obtained with thiamin hydrochloride and with other thiamin salts.

### Ovarian Localization of Manganese Deficiency

A group of heifers fed low manganese rations at the University of Wisconsin all produced weak calves which died a few days after birth. From examinations of the body organs of adults, it was concluded that the deficiency was localized in, and confined to, the ovaries. Ovaries of the deficient group contained only about one-third as much manganese as those of a manganese-supplemented group, while no significant differences were noted in comparisons of other organs and blood.—*Feedstuffs*, Oct. 30, 1948.

### Artificial Insemination

The editors of the *Holstein-Friesian World* submitted a number of questions on the present status of the artificial breeding program to extension dairymen and breeders in a dozen states. The answers received have been compiled and are published in that magazine (Aug. 7, 1948). The answers cover more than ten pages and are too lengthy for extensive review here. However, they do indicate that artificial breeding is here to stay because, after ten years of growth and development, it has been reported that during the past year more than a quarter of a million dairymen bought artificial service for nearly 1,750,000 cows. The effects of this program are assessed in various ways, but the compilation makes interesting reading for any veterinarian who is engaged in artificial insemination in his own practice.

The best concentration of dextrose to use for intravenous injection is probably a 5 per cent solution. However, the volume required at this concentration is so great that few veterinarians will take the time to use it. When a 50 per cent solution of dextrose is injected, it causes phlebitis, dehydration, upset water equilibrium, rapid elimination, and nephritis.—*Dr. W. D. Daugherty, Paris, Ill.*

Paralysis of the phrenic nerve is one of the objections to using curare in surgery.

# CLINICAL DATA

## Transmissible Lymphosarcoma in the Dog

Lieut. Col. JOHN H. RUST, V.C., U.S. Army

TRANSMISSIBLE lymphosarcoma of the dog is prevalent throughout the world and is particularly enzootic in Puerto Rico. It is characterized by neoplastic lymphoid growths on the genital mucosa and, rarely, by metastasis. Transmission is normally by coitus. This neoplasm is by far the most common tumor of the dog diagnosed at the Antilles Medical Laboratory, San Juan. To date, there are 12 examples in our tumor collection. In 1 of these cases, death resulted from metastasis.

### LITERATURE

*History.*—The transmissible nature was first reported by Nowinsky<sup>1</sup> in 1876. He succeeded in transplanting the tumor from one dog to another by rubbing the excised tumor into the scarified genital mucosa of a susceptible dog. Since that time, the tumor has received much attention because it gives the appearance of a true sarcoma and is transmissible from one dog to another. The fact that it exhibits some properties of immunity has added interest.

Cases have been reported in almost every

country with a medical press. Seligman<sup>2</sup> says that it was prevalent in British New Guinea in native dogs before the coming of Europeans. It is interesting to speculate whether the disease existed in that area before the separation of the Malayan Archipelago from the Asiatic mainland; whether it was carried by dogs of peoples migrating to those islands, or had a spontaneous development. Feldman<sup>3</sup> reports a case in which the tumor was primary periorbitally, which may be an example of spontaneous origin.

*Etiology.*—Unlike many other diseases of animals, venereal lymphosarcoma is not spread by a bacterium, virus, or related organism, but by the cells from a specific tumor. This fact has been repeatedly shown by many investigators. In order to eliminate the possibility of its being a virus disease, Wade<sup>4</sup> took fluid from macerated cells, passed it through Berkefeld filters and was unable to transmit the tumor. Other investigations were conducted by De Monbreun and Goodpasture<sup>5</sup> who subjected the cells to freezing, drying, glycerination, and physical disruption and also were unable to transmit the disease. These experiments would seem to indicate that no virus is involved, since most viruses can be subjected to at least one of these procedures without lessening their power to produce disease. Spirochetes were suggested as a possible agent but could not be found. Bacteriologic studies have been negative. Several investigators have believed that they had isolated an organism that was the causative factor, but have failed in transmission experiments. However, many have succeeded in transplanting the tumor in whole or as cell elements. Some, like Nowinsky,<sup>1</sup> have scarified the genital mucosa and rubbed the cells into the abraded tissue; others have made subcutaneous transplants, or subcutaneous and intravenous injections of cell suspensions. All have obtained a high percentage of takes in these attempts. There can be little doubt that the intact cells are essential in the chain of transmission. If there is an agent of transmission other than the tumor cell, it certainly does not conform to any presently known.

There has been much controversy over the exact rôle of the transplanted tumor cell in the new growth. Whether it increases entirely



—Signal Corps, U. S. Army

Fig. 1.—The advanced stage of the metastatic form of lymphosarcoma.

Presented at the Sociedad Insular de Medicos Veterinarios, San Juan, Puerto Rico, Nov. 16, 1947.

Lieutenant Colonel Rust is stationed at H.Q. Antilles Department, office of the department veterinarian.

at the expense of the new host, or whether it bears a factor by which certain tissue cells of the host are altered, is not known. It is most likely that the cells become parasitic and that the new host only furnishes a supporting network, a blood vascular system, and nutrition. This is the belief of Beebe and Ewing.<sup>6</sup>

There is a host specificity for the dog and fox. Many laboratory animals have been experimentally injected without success. Crane and Rust<sup>7</sup> attempted to grow the tumor in the anterior chamber of the rabbit's eye without success, but they do not consider these findings as conclusive.

**Transmission.**—The disease is transmitted naturally only by coitus. No doubt the violent and prolonged sexual union of dogs plays an important part in transmission. Injury to the genital mucosa may occur in mating, when the tumor cells become effectively implanted into the wounded flesh. Smith and Washburn<sup>8</sup> spoke of a tumor-bearing male who passed the disease to 11 of 12 females served. From this, it may be concluded that natural transmission is not particularly difficult. Beebe and Ewing<sup>6</sup> have likened the coital transmission to *cancer à deux* metastasis.

The limiting factors involved in the transmission of lymphosarcoma are not known. In certain dogs, which seem to be refractive, it is only with massive doses that experimental spread is possible. Mulligan<sup>9</sup> has suggested that since the natural infection is by coitus, some research be directed along hormonal lines. So far, this has not been done.

#### SYMPTOMS

The symptoms are not spectacular in the uncomplicated case. The keeper of the dog may first notice the dripping of a sero-sanguineous material from the prepuce or vulva. In females, it has occasionally been mistaken for an unusual reoccurrence or prolongation of estrum. If the disease has progressed to any marked degree, the skin area over the glans penis may show some swelling, or the female vulva may swell and protrude and thus enhance the misconception of estrum. There appear to be few cases on record where the tumor has caused actual mechanical obstruction to the flow of urine, or produced dystocia in whelping females. Those who have seen this tumor clinically, however, realize that these become possibilities with large tumors.

When the prepuce is retracted or the vagina examined, a flesh- to liver-colored tumor, either pedunculated or sessile, can be observed. It is soft and fleshy, highly vascular, and bleeds readily when manipu-

lated. It gives the appearance of a fast-growing sarcoma having a pebbly surface resembling the surface of a cauliflower.

In 1 case in which an exposed male dog was closely watched, the first change that occurred was the formation of numerous small vesicles. Within a few weeks, these areas changed into vascular nodules. The tumor rapidly acquired its mature characteristics. Smith and Washburn<sup>8</sup> examined some of these early growths and found that their histologic structure was similar to the mature tumor.

When the tumor and its underlying tissue is excised and examined on cross-section, it will appear flesh-colored and uniform. Occasional portions may or may not be invading subjacent tissue. In the majority of cases, a pseudocapsule will be observed on the exposed free surface, but none in the basal region. In the more recently acquired tumor, deep, submucosal extensions are not likely to be seen, but the older tumors penetrate deep into the underlying structures.

In cases with metastasis, an entirely different symptomatology is seen. The inguinal lymph nodes are usually enlarged and, in many cases, the metastatic cells



Fig. 2.—The spleen of the dog in fig. 1.



progress no further, but if they pass the barriers of these nodes, metastatic involvement of organs in remote parts of the body may occur. Multiple focal growths may appear under the skin over the entire body surface (fig. 1). These isolated tumors vary in size from minute bodies up to, and even greater than, 15 cm. Normally, most of these foci remain within the subcutaneous tissue, but some of these metastases will eventually involve the skin. When the skin is so involved, the tumor usually breaks down and a suppurating area, resembling exuberant granulation, develops. Because of this, the nodules are sometimes called granulomata. If these lesions are numerous enough, a toxemia may develop with a consequent loss of weight. There is, how-



Fig. 3—The liver of the dog in fig. 1.

ever, some cachexia even in cases without metastasis. Whether this toxemia is the result of a toxin elaborated by the sarcoma cells, or by the bacteria invading the ulcerating tumors, is not known.

Palpation of the abdominal viscera will

reveal additional painful tumor masses. In the 1 metastatic case observed, all of the lymph channels studied were invaded. Nodules varying in size from a pinhead to a hen's egg were visible in the omentum and on the gut. The spleen and liver had numerous large metastatic foci (fig. 2, 3). The tumor masses on these organs seemed to be peripherally, instead of diffusely, distributed. All lobes were equally affected. The thoracic viscera and central nervous system escaped the metastatic process.

#### PATHOLOGY

An attempt has been made to correlate other pathologic findings with the tumor growth. There are no gross changes of the abdominal viscera in the nonmetastatic cases, except those reported by Wade<sup>1</sup> where the kidney may be enlarged and mottled. In his experimental cases, he noted that this change persisted even after the tumor had disappeared. He observed an interstitial nephritis in both the naturally and artificially acquired disease. Because this was found to be independent of superficial ulceration, he concluded that the nephritis must be caused by a toxin liberated by the cells of the lymphosarcoma. The fact that he was able to reproduce these lesions with a cellular filtrate further convinced him of the validity of his hypothesis.

Wade<sup>1</sup> says that the first effect is upon the epithelium of the secretory tubules, where cloudy swelling and fatty degeneration of Henle's loop and some definite evidence of an interstitial reaction may be noted. These changes occur within the first three days. After this, an interstitial nephritis, which may completely subside or become chronic, sometimes is seen. The interstitial tissue has an accumulation of lymphocytes in the boundary zones extending for varying distances into the cortex. The evidence of the damage to the secretory tubules remains much longer but may disappear with complete restoration of the renal tissue. The tubular structures give an appearance similar to that found in acute toxic poisonings. There is no apparent change, in most cases, in the glomeruli except occasional hemorrhage. The capsular space occasionally contains an albuminous exudate and a few red cells. Bowman's capsule will often show a marked reaction and become swollen. One of the characteristics of the disease is that for a long time it re-



mains periglomerular; only in the later stages does the formation of fibrous glomeruli occur.

Wade also observed changes in the cells of the blood stream. Following experimental infection, there was an initial leucocytosis which rapidly subsided. The growth of the tumor was paralleled by a steady increase in mononuclear leucocytes but the total count after the subsidence of the primary leucocytosis varied little from the normal.

The histopathologic considerations are most interesting and present an ever-changing picture. Certain changes can be noticed that vary in degree, depending on the stage of the tumor development. These are:

- 1) The neoplasm is lymphoid.
- 2) There is an extensive but delicate capillary network which seems to be the main support for the lymphoid cells. There is a scant connective tissue network in young tumors which may increase moderately as the tumors mature.
- 3) Cells are uniform in size, round or polyhedral, and in large syncytial sheets.
- 4) Cell bodies are large with eccentrically placed nuclei and prominent nucleoli.
- 5) Mitotic figures may be numerous and vary in number with the stage of tumor development. They are fewer in the older tumors.
- 6) There is a marked invasive tendency as evidenced by frequent isolated tumor islands and the lack of a true capsule.
- 7) Metastatic tumors are structurally similar to those of the primary growth.

In 1 case studied with hematoxylin eosin, the histologic picture was that of a reticulum-cell sarcoma. Reticulum stain, however, revealed only a small amount of reticulum. With a fat stain, neutral isotropic fat droplets could be seen. These are nicely displayed in dark-field examinations of cell suspensions.<sup>5</sup>

#### IMMUNITY

An interesting phenomenon of the tumor growth is its cyclic behavior. In artificially induced lymphosarcomata, this character may be so great that the growth will die. On the other hand, naturally acquired tumors do not often disappear, but may become much reduced in size. The reason for this difference is unknown. The cycles do not follow any regular time pattern and may vary from two weeks to six months.

For several months following the surgical

extirpation of a tumor, particularly a long-standing one, it is impossible, except with massive doses of cells, to reinfest the dog. This is also true when the tumor has regressed to the point where it completely disappears. If a dog bears a tumor that is young and growing, it is much easier to establish a new growth on another part of the body. Bergell and Sticker<sup>10</sup> have said that an early "premetastatic" period exists and that during this period transplants are extremely difficult to establish. From these facts, it has been deduced that, as the tumor grows, the animal produces antibodies that are responsible for the eventual regression and cyclic behavior.

When lymphosarcoma cells are injected into the peritoneum of the rabbit, antibodies develop that will cause lysis of the tumor cells. Antitumor-cell rabbit serum has been injected into susceptible dogs along with a tumor cell suspension without resulting infection; but when the cells are given to dogs in combination with a non-immune rabbit serum, the disease develops. It is also possible to induce immunity in a dog with repeated doses of cells too few in number to bring about the establishment of a tumor.<sup>5</sup> Crile and Beebe<sup>11</sup> were able to bring about a complete regression in 7 of 11 dogs, with actively growing tumors, by direct transfusions of blood from dogs artificially immunized and from those having recovered from the tumor.

#### CONTROL

Control of the disease is difficult, since the stray dog serves as a reservoir. Dog breeders should carefully examine all males and females before mating and should also prevent the mingling of valued dogs with strays.

#### TREATMENT

In addition to the possible use of immune serum, Bergell and Sticker<sup>10</sup> treated cases successfully with a hepatic ferment, and Beebe and Tracy<sup>12</sup> used various bacterial toxins. The best results were obtained from killed suspensions of *Chromobacterium prodigiosum* alone or in combination with other organisms. Wong and K'ang<sup>13</sup> have used radium therapy successfully. X-ray has been used by Kaalund-Jorgenson and Thomsen<sup>14</sup> in 1 case without effect. The results obtained from x-ray and radium are contradictory and should be followed up.

Logically, it would be expected that both methods should be effective. Arsenous acid ointments and powders have been used with moderate success. Treatment for the most part has been confined to surgical excision and cautery. The method of choice in the localized tumor is electric- or thermocautery, but care must be exercised to insure that all neoplastic tissue is removed both from the genitalia and neighboring lymph nodes. It has been noticed that, following surgical removal of a tumor from the genital mucosa, inguinal lymph nodes that are swollen and suggestive of metastasis will frequently return to normal size. In order to avoid producing metastasis, gentle handling during examination or surgical procedure is important. In the case of the metastasized lymphosarcoma, no treatment is satisfactory. In most of these, euthanasia is advisable, for a slow, painful death is the usual result.

#### SUMMARY

A review of the literature on transmissible lymphosarcoma of the dog, including history, etiology, and transmission, is presented, together with observations made on 12 cases. Symptoms and pathology of the disease in canine patients are given, and the immunity, control, and treatment discussed.

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#### Self-Castration Due to Rabies

Cases of self-mutilation of dogs with rabies are not rare. I observed a partial self-castration in a 2-year-old German Wolfhound used for guard service during World War II. During the day, the dog was chained to his kennel in a spacious yard enclosed with a wooden fence. During the night, he was kept on a leash and was set free only in case of emergency.

One morning, after an uneventful night, it was noted that the dog was bleeding between the hind legs. Examination revealed a wound on the scrotum, but the cause of the injury could not be determined. The dog was brought to me for examination. No unusual behavior was noticed, and the animal was calm when examined. Pulse, temperature, respiration, reaction of the eye to light, and reaction to food and water were all normal. On the left scrotum, a wound 6 cm. long showed typical traces of dog teeth. The left testicle and suprastesticular gland were missing. Next day, rupture of the right testicle occurred as a result of the wound. The dog remained calm while the ruptured testicle was excised. He was kept under observation and not put into service, but escaped during the afternoon after the operation and bit 6 persons who tried to bring him back.

The dog returned calmly when his master called him, and was placed in his fenced yard. That night, he chewed the front wall of the fence and the wooden door pillar. The food given him remained untouched.

Because rabies was suspected, the animal was destroyed and his head sent to the state institute for examination. The report was positive for Negri bodies. At the autopsy, the stomach was hyperemic and contained wooden chips mixed with food particles.

The persons attacked by the dog were vaccinated immediately and none of them contracted rabies.

The dog had been in the camp for seven months and during this time had had no

opportunity to contact other dogs or cats. The first symptom of illness was self-injury; other symptoms did not appear until some time later.—*Karel Jirina, D.V.M., Praha, Czechoslovakia.*

### Toxoplasma in the Chinchilla

Early in July, 1948, we were called to treat a herd of chinchillas suffering serious losses. Of 60 animals, 20 had died before the owner requested the service of a veterinarian.

**Symptoms.**—The clinical symptoms varied, depending on the site of infection; strangely, however, all of the animals retained their normal appetite. The drop-



Fig. 1—Abdominal cavity of the chinchilla, showing enlargement of spleen and mesenteric lymph gland. *Karl Hagen*

pings were small and hard, the eyes were dull, and the sclera and conjunctiva appeared slightly cyanotic. The animals sat in an arched position, showing laborious breathing. A purulent nasal discharge was persistent in all animals over 8 months of age. The younger ones showed more acute symptoms, loss of equilibrium, and motility. Some turned somersaults, rolled on their sides, and went through different antics. These young animals showed a distressed facial expression.

**Postmortem Findings.**—The lungs were hemorrhagic; the spleen was four or five times its normal size; the mesenteric lymph glands were also greatly enlarged.

**Bacteriology Findings.\***—Smears were made from the lungs, lymph tissue, and

\*Credit is due Mr. Karl Hagen, bacteriologist, Chapman Chinchilla Research Laboratory, Los Angeles, Calif., for laboratory and photographic work reported here.

brain. *Toxoplasma gondi* was isolated from the lungs and lymph tissue of the matured animals. Brain tissue from animals under 8 months of age revealed the presence of *T. gondi*. Fluid taken from the lung tissue was injected intraperitoneally into laboratory animals, and clinical symptoms appeared in twelve to sixteen days. The animals were destroyed and *T. gondi* was isolated from the lungs and lymph tissue.

**Treatment.**—The animals were given intraperitoneal injections of  $\frac{1}{4}$  to  $\frac{1}{2}$  cc. of sulmet for four consecutive days; 5 to 10 drops of sulmet *per os* daily, following the intraperitoneal injections; and injections of 1 to 3 gr. of streptomycin for four days.

**Diet.**—All the animals were taken off of grain and put on roughage, such as alfalfa (two-thirds) and bean straw (one-third), chopped to encourage them to eat more. They were given all the greens they would eat and grapefruit and tomato juice.

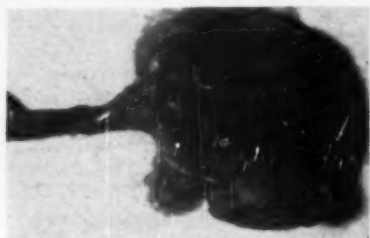


Fig. 2—Enlarged mesenteric lymph gland of adult chinchilla. Normal size is  $\frac{1}{16}$  in. in diameter. *Karl Hagen*

Of the original 60 animals, all showing clinical symptoms, 20 died before treatment was started and 15 during treatment. The 25 chinchillas which survived this infection appear to be normal again.

The probable sources of infection were birds and rodents.—*Hilan F. Keagy, D.V.M., Los Angeles, Calif.*

### Malignant Neoplasm of the Liver

In the December, 1948, issue (p. 558) of the JOURNAL, the legend for figure 2, showing liver tissue and neoplastic cells, is incorrect. The liver tissue is shown in the top of the photograph (instead of at the left), and the neoplastic cells are shown in the lower part of the illustration (instead of at the right). The article which it accompanies is titled "Malignant Neoplasm (Lymphoblastoma) of the Liver in a Hog," by Dr. George E. Bowler, Ann Arbor, Mich.

# Infectious Coryza of Turkeys (Sinusitis or Roup)

GAROLD O. SIGARS, B.S., D.V.M.

St. Joseph, Missouri

THIS case was called to my attention when the owner of a flock of 2,700 meat-type bronze turkeys, approximately 2 months old, stated that the heads of all of the turkeys were swollen on one or both sides, below and in front of the eyes. Nearly all of the sick birds were off feed and losing weight. They were housed on the range in a Turnbeck type brooder house designed so that two sides raise to form a range shelter after the birds are fully feathered. The house was approximately 10 ft. by 12 ft. and of the type recommended for turkeys in Kansas. The first sick birds had been noticed about two weeks earlier. When I was called, approximately 930 poults were affected.

The housing, feeders, waterers, and location of the range were checked and found to be satisfactory. The ration was checked and the feed tags showed that the poults were on a good ration. The weather had been cool and continued most of the summer to be cool and somewhat damp.

After checking some of the birds for the above information, sinusitis was diagnosed. The owner agreed to cooperate in marking the birds, separating the diseased poults from those apparently well, and gave us permission to try several treatments.

The literature was surveyed briefly to ascertain what drugs had been used on infectious sinusitis in turkeys.<sup>1-15</sup> It was decided to study the anatomy, pathology, and therapeutics of the disease.

## ANATOMY

Five normal turkey heads were secured for this study of the anatomy of the sinus, since it had been determined by other workers that infectious coryza involved the infraorbital sinus and adjacent structures, along with other parts of the respiratory

tract and, in advanced cases, some of the circulatory system.

The heads were frozen, then cut in sagittal, cross, horizontal, and frontal sections, and stored in formaldehyde. The sections were then probed and dissected to determine the relation of the infraorbital sinus to the other structures of the head. This study was made in comparison with studies of the infraorbital sinus of the chicken by Drs. W. M. McLeod and R. R. Wagers of Kansas State College.<sup>12</sup>

The sinus of the turkey, like that of the chicken, is a complicated diverticulum of the nasal cavity, extending laterally and ventrally to the nasal cavity, following the outline of the head from the posterior part of the eye forward to the nostril. The cavity may be divided into posterior, middle, and anterior for the purpose of description, although the three parts are continuous. The posterior part extends ventrally and curves upward posteriorly to the eye-

TABLE I—Results of Treatments for Infectious Coryza in Turkey Poults

Drug used	No. treated		Deaths	
	First	Second	(No.)	(%)
15% argyrol (aqueous)	365	29 (7.91%)	7	1.5
4% silver nitrate	210	17 (8.1%)	5	2.38
25% Sulfanilamide in olive oil	29 (7)*	3 (10.34%)	13	44.83
25% Sulfanilamide in cod liver oil	77	6 (7.79%)	4	5.19
25% Sulfamerazine in cod liver oil	249	36 (14.45%)	5	2.0
No treatment sinus aspirated	5	5 (100%)	5	100.0

\*Seven of this group were treated surgically.

ball. Laterally, it reaches the skin from a point above the angle of the mouth to a point below the lateral canthus of the eye and, thus, the entire lateral wall is in contact with the skin. Medially, it lies in apposition with the interorbital septum (vertical part of the ethmoid bone) and the lateral surface of the nasal cavity. This part is divided into lateral and medial portions by the incomplete septum.

The middle of the sinus is adjacent to

The writer is indebted to Drs. W. M. McLeod, chairman, Anatomy Department; E. J. Frick, chairman, Surgery and Medical Department; L. M. Roderick, chairman, Pathology Department; L. D. Bushnell, chairman, Department of Bacteriology; and their respective staffs of Kansas State College, for their gracious assistance.



the anterior part of the eyeball and extends to the frontal bone. Medially, it is in close contact with the lateral wall of the nasal cavity. Laterally, it is bounded by the skin. This part is by far the largest portion of the sinus. The ostium of the sinus is in the dorsomedial wall, just anterior to the eye. It opens into the meatus between the dorsal and middle turbinates. This opening is slitlike and lies in a line parallel to the turbinates which are horizontal (fig. 1).

The anterior part extends forward to a transverse plane just posterior to the nostrils and is wedge-shaped to fit the contour of this part of the head (fig. 2). It extends back to join the middle part. The anterior,

material which exerts pressure on the ostium and tends to cause it to close. As the disease progresses, this pressure crowds the three turbinates and closes the meatuses, thus causing the bird to breathe through its mouth.

In advanced stages of the disease, if the bird is infected on one side, the pressure in the sinus will usually close the eye on that side and the head may lose its original anatomical shape. The turbinates are pushed over toward the normal sinus as shown in figure 2. If both sides are affected, then both eyes may be closed and the bird is unable to see. The mucoid material becomes mucopurulent and, in the last stages, caseated. Many birds do not progress be-



Fig. 1—Cross section of a turkey's head just anterior to the eye. (1) infraorbital sinus; (2) nasal cavity; (3) oral cavity; (4) dorsal turbinate; (5) middle turbinate; (6) ventral turbinate; (7) choanae; (8) septum; (9) tongue. 2 x.



Fig. 2—Cross section of a turkey's head just about half-way between the eye and nostril. (1) infraorbital sinus; (2) nasal cavity; (3) oral cavity; (4) tongue; (5) middle turbinate; (6) septum. 2 x.

like the posterior, part of the sinus is a potential space in the area near the nostrils.

#### MACROSCOPIC PATHOLOGY

This infection of the infraorbital sinus is usually chronic, with a high morbidity and a low mortality. It is thought to be caused by a virus together with secondary invaders such as *Hemophilus gallinarum*.

In the first stages of the disease, the infraorbital sinus is distended with a mucoid

yond the stage where the exudate is mucopurulent. Thus, the mortality is low while the morbidity is high. Death is thought to be due to the secondary invaders reaching other parts of the respiratory system such as the lungs, air sacs, and bronchi. They may also reach the circulatory system. It has been noticed that the pH of the nasal discharge and of the sinuses also change with the onset of the disease. On checking the material in several infected

sinuses, it was found that they average about pH 8.00 (7.90 to 8.05). In checking the material, it was found to become more alkaline as the disease progressed. Later, it averaged 7.04 and ranged between 6.54 and 7.65. One must take into consideration that, after the bird takes its first breath, the nasal cavity may not be actually normal. The pH of the sinus material was taken on a glass electrode potentiometer, and sinus and nasal cavity washings were used to check. However, litmus paper was used on the normal birds because of the small amount of material that could be collected. This information is based on too insufficient data to be conclusive, but is sufficiently important to warrant further study.

#### MICROSCOPIC PATHOLOGY

Twenty sections were made of the infraorbital sinus. The microscopic pathology of this disease is characterized by the following changes:

The epithelial cells lining the sinus, which are normally pseudostratified ciliated cells, are greatly disrupted and are in different stages of cloudy swelling to necrosis. The goblet cells, which are few in normal sinuses, are greatly distended. The lining of the turbinates on the infected side is normally covered with pseudostratified columnar ciliated cells with many goblet cells undergoing the same changes; but in the early stages of sinusitis, there is cloudy swelling and distention of the goblet cells.



Fig. 3—Microscopic section of the head of a turkey just in front of the eye, and infected with sinusitis in the left sinus (note mandible is removed). (1) Infraorbital sinus; (2) nasal cavity; (3) septum; (4) choanae; (5) middle turbinate; (6) glandular tissue; (7) skin; (8) exudate in sinus.

The blood vessels in the area around the sinus are engorged (hyperemic) with blood and the tissues are edematous. Very few blood cells are found in the exudate in the sinus, in the early stages of the disease. The exudate is mucoid, as described by Hart and associates.<sup>15</sup> The pathology, in this case, is thought to be mucoid degeneration.

#### TREATMENT AND RESULTS

In this study, 930 poults were handled in the same way, except that the treatments differed. An attendant held the turkeys by the legs with the head down. The head was grasped with the left hand, just behind the ears, but not covering the trachea. With the head in a downward position, the infraorbital sinus was aspirated by inserting a 14-gauge, 1½-in. needle attached to a 10-cc. glass syringe, parallel to the beak into the anterior ventral part of the infraorbital sinus. The exudate in the sinus was drawn into the syringe. The needle was left in the sinus and another syringe, filled with approximately the same quantity of one of the medicinal agents, was injected into the sinus. From 1 cc. to 2 cc. of the medicine was injected into each sinus treated. Most of the birds were treated in two to seven days after the first symptoms of the disease were noted. The medicinal agents used in this case were made fresh for the treatment. A total of 930 birds were treated: 365 birds with 15 per cent aqueous argyrol; 210 with 4 per cent silver nitrate; 29 with 25 per cent sulfanilamide suspension in olive oil; 77 with 25 per cent sulfanilamide suspension in cod liver oil; and 249 with 25 per cent sulfamerazine suspension in cod liver oil.

Argyrol (15% aqueous silver proteinate) was injected directly into the infraorbital sinus of 365 poults following aspiration. Of this group, 29 (7.91%) had to be retreated in seven days with the same drug in the same manner. Of the original group treated, 7 (1.5%) died before the group was free from sinusitis. This material stayed in the sinus very well due to its viscosity.

A total of 210 poults were treated with silver nitrate (4%) in the same manner. Of these, 17 (8.1%) were retreated in seven days with the same remedy. Five (2.3%) of the treated birds died. This



medicine did not stay in the sinus as well as the argyrol but seemed to give equally good therapeutic results.

Sulfanilamide (granular) suspended in olive oil (25% w/v) was used in treating 29 poults. Three (10.34%) had to be retreated in seven days. In addition, 7 that were retreated required surgical operations to remove the caseated material and the medicine that remained inside the sinus. These birds were then treated with argyrol (15% aqueous) on a swab. The surgical operation was performed by making an incision about  $\frac{3}{4}$  in. long in the ventral anterior part of the sinus. The exudate and material was curetted from the sinus. Of the treated birds, 13 (44.83%) died. This medicinal treatment was of very little value as compared with the others.

Sulfanilamide (powder) suspended in cod liver oil (25% w/v) was used in treating 77 poults. Six (7.79%) were retreated in seven days and 4 (5.19%) of this group died. From a therapeutic standpoint this treatment offers promise.

A suspension of sulfamerazine in cod liver oil (25% w/v) was used in treating 249 poults. Of the group, 36 (14.45%) required retreatment in seven days, and 5 (2.0%) of the group died. The drug seemed more promising for the treatment of sinusitis in turkeys than others that had been compared with argyrol (15% aqueous), which had been considered the standard treatment.

Five poults which were infected artificially by injecting some of the exudate into a normal sinus were aspirated with no other treatment given. Seven days later the treatment was repeated. The sinus did not fill as fast the second time but the treatment did not effect a cure.

#### SUMMARY

- 1) The sinus of a turkey is similar anatomically to the sinus of a chicken.
- 2) Sinusitis is a chronic mucoid degeneration of the mucous membrane lining the sinus.
- 3) The disease causes the lining cells of the sinus to undergo necrotic changes.
- 4) Sulfanilamide and sulfamerazine suspensions in cod liver oil seem to have possibilities as medicinal agents.
- 5) The pH of the secretions of the sinus may have some bearing on the course of

the disease and may suggest a possibility in the use of chemicals to change the pH in combating it.

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#### "Pulling Together for Healthy Herds"

Every veterinarian is urged to read the article by Prof. C. G. Bradt, of Cornell University, titled "Pulling Together for Healthy Herds," published in the Nov. 10, 1948, issue of *Hoard's Dairyman*. Professor Bradt writes with straightforwardness and understanding on how veterinarians, county agents, and livestock owners are thinking together and working together "to insure the future of a permanent agriculture."

The practitioner who attempts treatment of internal parasites in dogs without the benefit of a microscopic diagnosis is inadvertently wooing the principle of over-the-counter therapeutics.

## DDT Poisoning and X Disease in Cattle

In the course of investigations on DDT poisoning in the human being (Biskind, M. S.: DDT Poisoning and the Elusive Virus X—in press), numerous cases of similar poisoning in animals incidentally came to light. These intoxications, like the human cases, invariably have been attributed to known or to unknown infections. In 6 fatal cases in dogs investigated by the author, the affection was attributed to distemper. In cattle, the syndrome is now related to a mysterious X disease (Prairie Farmer, (Aug. 28, 1948): 31).

It is no accident that a similar disorder in human beings has also been attributed to a hypothetical virus X or to any of a variety of known infections. Nor is it a coincidence that both the human and the animal disorders are of very recent origin and first appeared about the same time within the last two years. The possibility that these affections in both man and animals are caused by DDT poisoning seems thus far to have escaped attention.

Despite a large and impressive literature on the toxicology of DDT, which demonstrates conclusively its extreme toxicity to animal life, without exception, the myth has become prevalent that it is lethal only for insects and is harmless to mammals. Not only have suggested safe concentrations been vastly exceeded (up to 20 times or more) in the commercial products, but DDT preparations are handled indiscriminately, without even elementary precautions to prevent inhalation, ingestion, or absorption from the skin by man or animals.

In a recent visit to a midwestern farming community, I was amazed to learn of the abandon with which cattle and other animals are dusted with DDT powders, and, in contravention to elementary precautions designed to limit absorption through the skin, are even doused with liquid preparations of this agent. Barns are intensively sprayed or fogged with aerosols, and even the feed is contaminated. Numerous cases of X disease culminating in severe hemorrhagic enteritis occurred in these animals; and numerous cases of the so-called virus X syndrome occurred among the persons handling the DDT preparations.

Small wonder then that the signs of the virus X syndrome in man and of X disease in cattle are precisely the known signs of

DDT poisoning. In human beings exposed to DDT, some, or all, of the following appear: acute gastroenteritis with nausea, vomiting and intractable diarrhea, rhinitis, irritation of conjunctivae, sore throat, a persistent sensation of constriction or a lump in the throat, cough, persistent headache, extreme muscular weakness, pain in the joints and aching and heaviness of the limbs, various paresthesias, apprehensiveness, and, following skin contamination, dermatitis. X disease in cattle has been described as follows (Prairie Farmer, *ibid.*):

Although it started only recently, serious losses have already occurred in at least 26 states. Young animals are most susceptible. Severely affected animals usually die. Pregnant animals frequently abort. It lasts from several weeks to about three months. Four to 8 percent of affected cattle die. Symptoms include a watery discharge from the eyes and nose, falling appetite, loss of condition, depression, and a gradual thickening of the skin. Sometimes diarrhea occurs in late stages.

In fatal cases in dogs and cats exposed to DDT, there have been vomiting, anorexia convulsions, muscular weakness, loss of sphincter control, diarrhea and, finally, paralysis of the hind limbs.

In experimental studies in laboratory animals, DDT causes widespread damage to virtually every organ in the body, the most serious morphologic change occurring in the liver. DDT is stored in the body fat, hence, cumulative small doses are as toxic as larger single doses. The persistent storage of DDT in the body undoubtedly accounts for the persistence of symptoms long after the agent is withdrawn.

Unquestionably, DDT is far too toxic to be indiscriminately used as an insecticide. Meanwhile, recognition of DDT poisoning in cattle and other animals is extremely important to the ultimate control of this hazardous agent.—Morton S. Biskind, M.D., New York, N. Y.

Except for its high ascorbic acid and low riboflavin content, sow's milk is similar in composition to that of the ewe.

The only places in North America where goats are known to have brucellosis are Mexico and the states along the Mexican border, according to Dr. Cecil Elder of the University of Missouri.

# Interstitial Pneumonia with Giant Cells and Inclusions

D. R. CORDY, D.V.M., Ph.D.

Pullman, Washington

PINKERTON, Smiley, and Anderson<sup>1</sup> have made an interesting comparison of the giant cell interstitial pneumonia with inclusions in Hecht's disease of children and in distemper in the mink, fox, and ferret. No report of a similar condition in dog distemper seems to have been made, although DeMonbreun<sup>2</sup> has described an interstitial pneumonia with inclusions but no giant cells in cases of naturally acquired distemper in dogs. It is the purpose of this paper to report 2 cases of interstitial pneumonia with inclusions and giant cells in a distemper-like disease of dogs, and to compare them with the exudative bronchopneumonia often seen in field cases of canine distemper.

## INTERSTITIAL PNEUMONIA

*Case 1.*—The first case of interstitial pneumonia with giant cells and inclusions occurred in a 3½-month-old male Cocker Spaniel. The dog had never been immunized against distemper. There was a history of listlessness and purulent eye discharge for a week or ten days, and anorexia and dyspnea for a few days, before admission. During ten days in the hospital, the animal showed nasal discharge in addition to earlier signs. Temperature ranged from 98.0 to 102.4 F. The dog died and was autopsied March 25, 1947.

Grossly, the liver and kidneys were slightly swollen, soft, and pale. The lungs were both involved in their entirety, being dark pink, full and uncollapsed but not consolidated, and having a doughy consistency. White froth was present in the trachea and bronchi. Pieces of the lung sank in water. The remaining organs appeared normal.

Blocks from the lung were stained with hematoxylin and eosin, and with Pollak's trichrome stain. The bronchi were but little affected, showing only occasional infiltrating mononuclears in the wall and a little epithelial denudation. Large macrophages with pale, vacuolar cytoplasm were

moderately numerous in the bronchial lumens, with some neutrophils also present. A few desquamated epithelial cells were observed. A considerable amount of pink, granular material probably represented the white froth seen grossly.

The walls of the alveoli showed an interstitial type of pneumonia, being thickened by accumulations of numerous septal cells. Fairly numerous large multinucleate giant cells (fig. 1) were also observed and seemed to be attached to, or sessile upon, the walls. The lumens of the alveoli and alveolar ducts contained a moderate number of cells, mostly large septal cells with

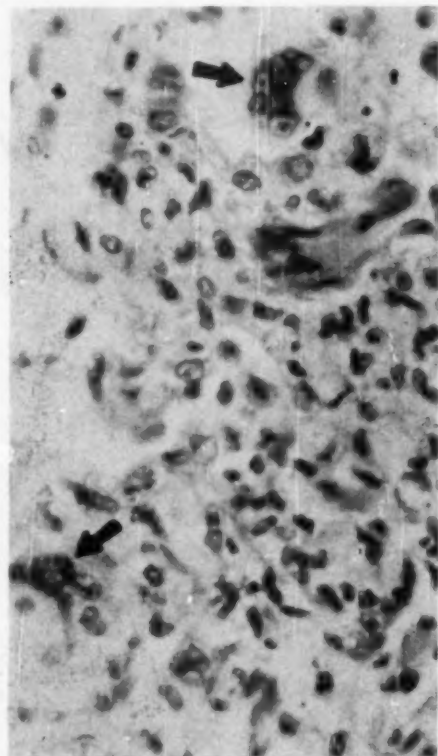


Fig. 1.—Interstitial pneumonia showing several giant cells.  $\times 400$ .

Pathologist at the Institute of Agricultural Sciences, College of Veterinary Medicine, State College of Washington, Pullman, Wash.

abundant clear cytoplasm. Free giant cells and some neutrophils were observed. There was considerable pinkish, granular material, representing edema fluid, and an occasional erythrocyte. The vessels of the alveolar walls were moderately dilated in some areas. The pleura, larger vessels, and major septa were normal.

With Pollak's trichrome method, the inclusions stained a bright rose red, and were much more evident than with hematoxylin and eosin. Inclusions were numerous in this lung (fig. 2 and 3), being found in bronchial epithelium, septal cells, and giant cells. Cytoplasmic inclusions were somewhat more numerous than nuclear inclusions. The former were often multiple, while only occasionally were two or three inclusions found in the same nucleus. Both types frequently were surrounded by a clear zone or halo. With nuclear inclusions,

fine threads radiating out toward the nuclear membrane were sometimes seen. There was an occasional appearance of chromatin margination. The size of the inclusions ranged from about 1 to 10 $\mu$ . The bodies were homogeneous and nongranular. They were readily distinguished from nucleoli and from erythrocytes. No inclusions were observed in endothelial cells.

*Case 2.*—The second case, a 4-month-old male, Collie-type mongrel had been given 10 cc. of distemper antiserum at 6 weeks of age. Green's distemperoid vaccine was administered at about 9 weeks of age. A month later, illness appeared and terminated fatally nearly three weeks later. The animal showed depression, weakness and



Fig. 2—Interstitial pneumonia showing cytoplasmic inclusion in bronchial epithelium. x 930.



Fig. 3—Interstitial pneumonia showing nuclear inclusion in binucleate septal cell. x 930.



orexia, and progressive loss of weight. There was a slight purulent eye discharge during the final week of illness. Diarrhea was mild and infrequent. Blood was noted in the feces once or twice. Temperature readings did not exceed 102.8 F. No cough or nasal discharge was observed. Some dyspnea appeared a day or two before death on April 2, 1948, and autopsy was performed about two hours later.

Grossly, the lungs showed a vague grayish and reddish mottling, were full and uncollapsed, and of a somewhat doughy consistency. The entirety of both lungs was uniformly affected. No consolidation was present. Pieces of lung floated in water, but were largely submerged. The eyes showed purulent conjunctivitis. There was redness on the tops of the folds in the colon and rectum. The liver was slightly swollen and showed several white foci 1 mm. in diameter. The renal cortex showed some grayish and reddish mottling. The spleen was slightly enlarged. The trachea and large bronchi were clean and empty. All other organs appeared normal.

Microscopically, the liver showed tiny abscesses, and the central ends of the hepatic cords were pale and vacuolar. The kidney showed some cloudy swelling and fat phaneriosis in the convoluted tubules. The red pulp of the spleen showed reticulo-endothelial hyperplasia and there were numerous macrophages containing yellow pigment granules. The splenic follicles were not active and showed some central hemorrhage. Microscopically, the lung closely resembled that of the first case, although neutrophils were somewhat more numerous in bronchial and alveolar lumens and in alveolar walls. Giant cells were also somewhat more numerous, being present in practically every field. The numbers, location, and appearance of inclusions was similar to the first case.

It is of interest to note that the owner and his small son were affected with a mild but persistent respiratory condition at the same time as the dog.

#### EXUDATIVE BRONCHOPNEUMONIA

For purposes of comparison, 3 typical cases of distemper with exudative bronchopneumonia were drawn at random from the slide file. These dogs showed all or several of the usual symptoms of fever, anorexia, conjunctival or nasal discharge, diarrhea, dyspnea, cough, and depression.

All 3 showed some parenchymal degeneration upon autopsy. One had keratitis and slight gastroenteritis, another pustular dermatitis and mild gastroenteritis. The pneumonic portions of the lungs in these animals were pinkish, or yellowish, gray, moist, lumpy, and of the flabby consistency of spleen or muscle. There was no consolidation as is seen in fibrinous pneumonia. Yellowish gray, opaque exudate was present in the bronchi. In 1 dog, the pneumonia had a patchy or disseminated distribution over much of the anteroventral two-thirds of the lungs, a typical lobular pneumonia. The second dog had a similar pneumonic pattern with the addition of small pulmonary abscesses and secondary suppurative pleuritis. The third dog showed a confluent or lobar involvement of the anterior lobes.

The microscopic picture was similar in all 3 animals. With the exception of the pleuritis in 1, the pleura was normal. No lesions were found involving the blood vessels. In 2 dogs, the major septa showed some edema and a little leucocytic infiltration in pneumonic areas. The bronchi and larger bronchioles were filled with an exudate composed principally of neutrophils with some macrophages, desquamated epithelium, and debris. Much of the lining epithelium had been lost and, where remnants remained, neutrophils were found among the epithelial cells. Numerous macrophages and some neutrophils were seen infiltrating the lamina propria. In some individual bronchi, abscesses were forming. In others, fibroplasia was beginning.

The alveoli were usually filled with a cellular exudate composed chiefly of neutrophils with some large septal cells with foamy cytoplasm (fig. 1). A few alveoli showed edema or hemorrhage. One lung showed necrosis in an area involving several alveoli. While occasional binucleate and rare trinucleate septal cells were observed, no true multinucleate giant cells were seen. The alveolar walls and peribronchial tissue showed moderate to marked hyperemia in the pneumonic areas. The pneumonia was either diffuse or distinctly peribronchial in distribution. Interstitial accumulations of cells did not occur in the alveolar walls.

With Pollak's trichrome stain, no endothelial inclusions were seen. A few cytoplasmic and nuclear inclusions were ob-

served in septal cells and in what remained of the bronchial epithelium. These inclusions were definite and well formed, but few in number compared with those found in the 2 dogs with interstitial pneumonia.

#### DISCUSSION OF LITERATURE CITED

Pinkerton *et al.*<sup>1</sup> reported lesions in mink which were essentially identical with those found in our 2 canine cases of interstitial pneumonia. In mink, these pneumonic lesions were regarded as being of primary virus origin. Pinkerton<sup>2</sup> earlier found no bacterial infection in such cases. Some mink showed only pulmonary congestion, most of the animals showed patchy areas of consolidation (1 to 5 mm. in diameter), and a few showed almost uniform consolidation of one or more lobes. Microscopically, there was thickening of the alveolar walls due to accumulations of macrophages and some plasma cells. Large multinucleate cells were present and seemed to be derived from the alveolar lining cells by proliferation and fusion. The alveoli contained a few large, vacuolated macrophages and desquamated lining cells, but neutrophils were inconspicuous. Giant cells were also observed in the alveolar lumen and in bronchiolar epithelium, and usually appeared to be attached to the wall. Inclusions, characteristic of distemper, were

found in bronchiolar epithelium, alveolar lining cells, and in giant cells. Cytoplasmic inclusions were somewhat more numerous than nuclear inclusions. In the lungs of foxes and ferrets with distemper, a purulent exudate in the alveoli was usual, although 1 fox and 1 ferret showed sufficient giant cells to suggest giant cell pneumonia.

In 12 fatal cases of naturally acquired distemper in dogs, DeMonbreun<sup>3</sup> found interstitial pneumonia, especially about the bronchioles. Large mononuclears were seen infiltrating the alveolar walls and peribronchiolar tissue. The mucosa of large and medium bronchi was slightly infiltrated by similar cells. In many cases, the mucosa of smaller bronchi was completely denuded of epithelium. There were small areas of hemorrhage. Neutrophils were inconspicuous, and giant cells were not reported. Cytoplasmic inclusions were found in bronchial and alveolar epithelial cells. Nuclear inclusions were present, but less abundant, in the epithelial cells of the bronchi and their mucous glands. Two of these cases showed an extensive purulent bronchopneumonia, but in many areas this did not obscure the interstitial pneumonia just described. Thus it is seen that, except for absence of giant cells, the lesions described by DeMonbreun closely resembled our cases.

Dunkin and Laidlaw<sup>4</sup> were surprised at the paucity of severe respiratory lesions in their experimentally infected dogs, but did state that in all autopsies on dogs which were killed when showing a considerable degree of fever, there were signs of mild bronchitis and small scattered patches of early bronchopneumonia. In 1 autopsy protocol, they reported finding little patches of lung in which there were large mononuclear cells in the air sacs and a few wandering cells in the bronchi. Eosinophilic inclusions were observed inconstantly in cells in the air sacs.

In distemper in ferrets, Dunkin and Laidlaw<sup>5</sup> found small, flat, raised, solid areas on the surface of the lungs in a third of their cases. The same lesions were also observed in 3 normal ferrets. Microscopically, these foci showed alveoli completely filled with large clear cells with pale nuclei and foamy cytoplasm. Some cells had two nuclei. Occasional eosinophilic inclusions were noted in these large cells. A few small, round cells were seen in septa and pleura. Neutrophils were scanty.

It is possible that Dunkin and Laidlaw overlooked an interstitial infiltration of the alveolar walls, as their findings in the alveolar lumens agree with those of DeMonbreun and, except for the presence of numerous multinucleate cells, with those of Pinkerton, *et al.*, and the present writer.

Distemper is generally regarded as be-

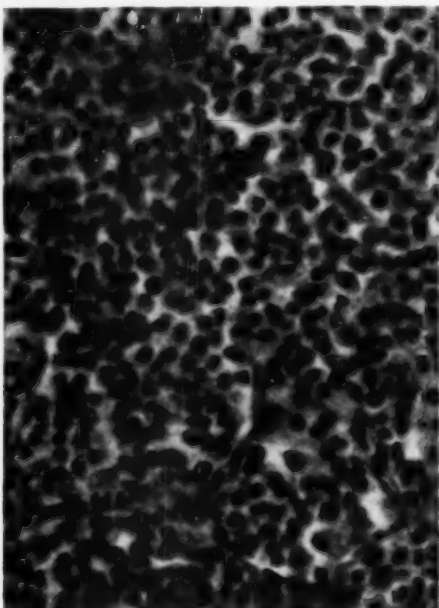


Fig. 4—Exudative bronchopneumonia showing predominance of neutrophils in the alveoli.  $\times 440$ .



ing the only virus disease of carnivora showing both cytoplasmic and nuclear inclusions.

Green and Evans<sup>6</sup> reported that cytoplasmic and nuclear inclusions (especially the former) were frequent in the bronchial epithelium of dogs, foxes, mink, and ferrets with distemper. Occasional nuclear inclusions were found in pulmonary macrophages in foxes. Kriesel,<sup>7</sup> working with experimental distemper in puppies, found nuclear inclusions in alveolar wall cells, and cytoplasmic inclusions in bronchial and alveolar epithelium, bronchial mucous glands, and histiocytes in the alveolar wall and lumen.

The inclusions of fox encephalitis are most likely to be confused with those of distemper but, in fox encephalitis, the inclusions are intranuclear and are present most regularly in vascular endothelial cells.

Green and Shillinger<sup>8</sup> found a few nuclear inclusions in pulmonary histiocytes in 6 of 12 cases of fox encephalitis in dogs. Cytoplasmic inclusions were absent. In contrast, Green and Evans<sup>6</sup> found no nuclear or cytoplasmic inclusions in endothelial cells in several hundred foxes with distemper.

The finding of both cytoplasmic and nuclear inclusions in all 5 of our cases suggests that the primary disturbance was distemper, regardless of the types of pneumonia present. No endothelial inclusions were found in any of these animals. The history of previous immunization in 1 of the interstitial pneumonia cases would raise some question as to etiology. This might have been a sporadic instance of a deteriorated antigen failing to protect, but it has not been proved that immunologically distinct strains of distemper virus do not exist. The writer,<sup>9</sup> in an earlier work, produced typical fatal distemper by injection of commercial distemper virus into 2 puppies apparently fully recovered from equally typical distemper produced by injection of material from 2 clinical cases of the disease.

It is possible, but unlikely, that a distinct interstitial pneumonia virus exists which leads to formation of both cytoplasmic and nuclear inclusions, and which is otherwise distemper-like. A second possibility is the existence of strains of distemper virus possessing peculiar pneumonic predilections leading to the production of interstitial pneumonia. A third possibility, combining all of the manifestations into a single varying complex, seems to be most generally accepted. According to this latter explanation, the lungs in distemper may be un-

affected, congested, or show interstitial pneumonia as primary virus reactions. The exudative bronchopneumonia often seen in field cases of distemper is regarded as a secondary bacterial infection superimposed on one of the primary pulmonary lesions.

Dunkin and Laidlaw<sup>4</sup> regarded the frequent purulent bronchitis and bronchopneumonia in field cases of distemper in dogs as due to some secondary bacterial infection, as they found almost none in experimental dogs. These workers<sup>5</sup> made a similar statement in regard to the occasional case of bronchopneumonia occurring in their distemper ferrets. DeMonbreun<sup>3</sup> found 2 cases of purulent bronchopneumonia superimposed on interstitial pneumonia occurring in 12 cases of naturally acquired distemper in dogs. DeMonbreun cited several of the early investigators who frequently isolated *Alcaligenes bronchisepticus* from such cases of bronchopneumonia in distemper. Pinkerton, *et al.*,<sup>1</sup> mentioned the relatively frequent occurrence of exudative bronchopneumonia in foxes and ferrets with distemper. Pinkerton, *et al.*,<sup>1</sup> mentioned the relationship of secondary bacterial infection.

The writer, in routine autopsies and in some previous experimental work,<sup>10</sup> found exudative bronchitis or bronchopneumonia in 46 (37%) of 123 natural cases, and in 9 (25%) of 36 experimental cases of distemper, in dogs. Many of the natural cases were diagnosed on clinical and autopsy findings, but some were confirmed by finding inclusions. Most of the pneumonia cases in experimental dogs were terminal in untreated animals, whereas Dunkin and Laidlaw<sup>4</sup> destroyed many of their dogs at an earlier stage of the disease. It is quite probable that carefully isolated, well-housed, experimental dogs would be less prone to secondary pulmonary infection than the privately owned animal which is often sick several days before being presented for treatment.

#### CONCLUSIONS AND SUMMARY

Two canine cases of interstitial pneumonia with giant cells and inclusions are reported. These cases appeared to be identical with similar cases reported in distemper in mink by Pinkerton, *et al.* Except for the presence of giant cells, the 2 cases are closely comparable with the pulmonary lesions found in naturally infected dogs by DeMonbreun and in experimentally infected dogs by Dunkin and Laidlaw. The presence of both cytoplasmic and nuclear inclusions indicates the presence of distemper virus.

Three cases of the typical exudative bronchopneumonia seen in field cases of dis-

temper are described for comparison. Here, again, both cytoplasmic and nuclear inclusions indicate the existence of distemper although the pneumonia is of a different type.

The evidence available seems to indicate that the interstitial pneumonia is a primary virus lesion, while the exudative bronchopneumonia is due to secondary bacterial infection.

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### Vaccination Program Under Full-Scale Test in Mexico

"The greatest scientific campaign ever waged against foot-and-mouth disease is now well under way in Mexico," is the word that has gone out to United States livestock interests in a press report dated Dec. 1, 1948, Mexico City.

The campaign centers on semiannual vaccination, with periodic inspections of every animal, disinfection, occasional slaughter, and quarantine as adjuncts. Enough vaccine is now being produced in Mexican laboratories to meet all needs, making it unnecessary to continue importations from foreign sources, it is reported.

The view has been advanced and publicized that this five-point program may bring about the eradication of foot-and-mouth disease within about two years. Responsible officials, however, are not lending their signatures to such predictions.

Instead, official forecasts on the success of the campaign are being given out in calculated phrases which suggest that eradication is a possibility rather than a probability.

### Veterinary Postmortem Procedures

The Army Institute of Pathology has prepared an outline for the performance of postmortem examinations. This will serve as an excellent guide to any veterinarian who conducts examinations of this kind, and particularly to those practitioners who hope to use the facilities of the Army Institute of Pathology in making a more definite and a more specific diagnosis. The outline contains a form for necropsy protocol, listing the various observations to be made and recorded. It also lists a general description of the type of remarks which the Army Institute of Pathology appreciates in connection with tissues submitted to it for more complete examination.

To accompany this booklet (19 pp.), there is an autopsy record which is available for the use of practicing veterinarians, and particularly for members of the AVMA. This has been prepared by the Registry of Veterinary Pathology and is sponsored by the American Veterinary Medical Association.

These are items which every practicing veterinarian should have on hand so that, in those instances where he needs additional help, he will have all of the facts and the scientific background readily at hand for immediate use. Copies may be obtained by writing to the Army Institute of Pathology, American Registry of Pathology, Washington 25, D.C. Simply ask for Veterinary Postmortem Procedures and for Veterinary Necropsy Protocol. These will be sent upon request so that you may be in a position to take full advantage of the facilities of the Registry of Veterinary Pathology which the AVMA helps to support.

Pearson and Schmidt, of the Texas experiment station, have ascertained that a daily intake of 38 micrograms of pantothenic acid per kilogram of body weight is adequate for normal growth and health in the horse. —*J. Anim. Sci.*, Feb., 1948.

Tryptophane serves as a precursor of niacin in the young calf.

# Tyrothricin-Benzyl Benzoate in Canine Dermatitis

ALAN BACHRACH, B.S., V.M.D.

Philadelphia, Pennsylvania

THIS report contains information regarding our observations in a series of cases of canine dermatosis treated with a new antibiotic-scabicide mixture. The preparation used for local application is identified by the term "tyroscabe"<sup>\*</sup> and contains:

Tyrothricin .....	0.05%
Benzyl benzoate .....	30.0%
Benzocaine .....	3.0%
Alcohol .....	62.0%
Water .....	q.s.

This mixture has been used with favorable results in the treatment of scabies in human patients.<sup>1,2</sup> These reports, and the need for an effective treatment for dermatologic disturbances in dogs, prompted our studies.

Originally, benzyl benzoate was used locally for the treatment of mange. Tyrothricin, the original popular antibiotic agent, appears to be effective in the local treatment of pyogenic infections, especially in those due to gram-positive organisms. A mixture of these two agents has proved effective in the management of diverse dermatologic entities in dogs. Our studies reported herein include observations of 67 dogs and 1 cat. The classification and number of canine cases are shown in table 1.

It is agreed that the etiology of canine dermatosis, as a whole, is not very clear, and specific information, other than parasitism caused by ectoparasites, is lacking in veterinary literature. Many of the cases presented to us for diagnosis and treatment showed varying degrees of dermatitis. Pruritis is usually an accompanying symptom as manifested by scratching or rubbing. This part of the history as presented by clients is undoubtedly familiar to many veterinarians. In many cases, depilation is general; in others, only limited areas of the body appear to be involved. In our series, tyroscabe was applied directly to the areas of the body showing loss of hair and red and inflamed areas that the patient scratched; the areas were then massaged. Periods of treatment ranged from one to

seven weeks, depending on the severity and extent of the condition. Most cases were treated daily or every other day for one or two weeks. In generalized cases, one-third of the body was treated at three-day intervals.

Since the mixture is easily applied, does not contain an oily base or an emulsion, and is free from objectionable odor, the clients did not object to the applications. The preparation dries readily so that the possibility of damage to furniture, subsequent to treatment, is eliminated. This is another favorable feature, especially when owners are using it for dogs maintained in private homes.

## CAUSES OF DERMATOLOGY

Many dermatologic lesions in dogs have a systemic background. For that reason, some of the animals in this series have had, in addition to local treatment with tyroscabe, various supplementary treatments

TABLE 1—Classification and Numbers of Canine Cases

Classification of Dermatitis	Cases (No.)
Chronic generalized dermatitis and pruritis (dry eczema) .....	31
Chronic moist dermatitis (weeping eczema) .....	14
Demodectic mange .....	7
Chronic pustular dermatitis .....	5
Chronic exfoliative dermatitis .....	5
Sarcoptic mange .....	3
Acanthosis nigricans .....	1
Favus .....	1

and dietary adjustments. Diet is a most important consideration. Many of the dogs in our territory are maintained on fresh horsemeat, which does not contain much fat. In cases where it was necessary, because of the low-fat diet, we prescribed unsaturated fats as a supplement.

Possible vitamin and mineral deficiencies also must be considered. Where there was reason to believe that such deficiencies existed, we administered a vitamin-mineral preparation containing calcium gluconate, phosphorus, iron, manganese, iodine, copper, cobalt, and vitamins A, D, and B complex. Some of the dogs unintentionally were maintained on a salt-poor diet, since the meat

<sup>\*</sup>"Tyroscabe" identifies the tyrothricin-benzyl benzoate mixture prepared by Sharp and Dohme, Inc., Philadelphia, Pa.

was boiled in plain water. It was suggested to the owner that a small amount of sodium chloride be added to the water in which the horsemeat was boiled. We are of the opinion that this is a rational procedure.

It is our belief that milk is intended chiefly for the feeding of young animals and may well be eliminated from the diets of mature dogs, since abnormal skin conditions, such as allergic reactions, may be due to an acquired sensitivity to milk. For this reason, milk was omitted from the ration offered to the dogs in this series.

Frequent bathing of dogs with strong alkaline soaps is contraindicated, since it has a tendency to remove the oil naturally present in the skin. For that reason, routine and frequent bathing of the dogs was not permitted.

Some cases of dermatologic disease in dogs may be the result of a hormone imbalance. In our series, however, none of the dogs received hormone therapy.

The anal pouches of dogs frequently contain an accumulation of the normal secretions and may show evidence also of pyogenic infection. We believe these glands are frequently the seat of focal infections and that they have an adverse effect on, and may even be responsible for, some cases of skin disease. In all of our cases in this series, the content of the anal glands was expressed. We believe that this procedure was beneficial, especially in the cases showing evidence of nonparasitic dermatosis involving the distal portion of the dog's body. In 10 cases where internal or external parasites (tapeworms and/or fleas) were found, specific treatment for the parasites was given without local treatment of the skin, even though lesions were present, and the response was satisfactory. Other reports<sup>3, 4</sup> indicate that cases of dermatologic disturbances due mainly to fleas should be treated by eliminating the parasites.

Systemic and local manifestations must be considered by the veterinarian in the management of skin conditions in dogs, and usually local treatment of the lesions must be provided. In the eight conditions previously cited, tyroscape was used. Excellent results were obtained in 34 animals (50% of the cases). To consider the results excellent, a complete cure with no remission of symptoms for six months subsequent to treatment must follow. Good results were obtained in 20 animals (30%). In classifying

a result as good, elimination of the pathologic lesion as long as treatment was applied was observed. Three of the cases (5%) showed fair results. In these cases, only partial improvement was noted. In 10 animals (15%), no improvement or even aggravation of the condition was observed. The response in these animals was classified as poor.

Benzyl benzoate has been used extensively as an agent for the treatment of mange in dogs and has been found to be a safe and effective agent. On the other hand, it appears to be toxic for cats. During the time of our studies, a cat with an extensive, chronic dermatitis was presented for examination and treatment. In this case, many agents had been applied and administered previously without beneficial effect. Since the animal was in such poor condition, we decided to apply liberal amounts of tyroscape. This treatment was given daily for three days, at which time the cat developed convulsions and was destroyed. It was concluded that a toxemia had resulted from the liberal application of benzyl benzoate.

#### SUMMARY

Tyroscape, containing tyrothricin and benzyl benzoate, was used locally in the treatment of eight types of dermatologic manifestations in 67 dogs. Eighty per cent of the animals showed marked improvement, while 50 per cent showed a complete cure with no recurrence. Eighty-five per cent of the cases, classified as generalized dermatosis, showed satisfactory improvement. This group included many chronic cases in which several agents and preparations previously had been used unsuccessfully. Five cases of exfoliative dermatosis and 5 cases of pustular dermatitis showed satisfactory improvement and recovered with tyrothricin-benzyl benzoate treatment. Four of 7 cases of demodectic mange showed marked improvement following the local administration of tyroscape. One case of sarcoptic mange responded satisfactorily as did a case of acanthosis nigricans, while there was no response in the single case of favus. Tyroscape is essentially nontoxic for the dog, but it is not safe for general use on cats.

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The virus of western equine encephalomyelitis, as well as other neurotropic viruses, remained infectious for several days in chlorinated drinking water retained in a plumbing system at room temperature, according to a report by Zichis and Pisczek, of the Illinois Department of Health.—*Science*, Nov. 5, 1948.

### Salmonella Pullorum in a Dog

On Sept. 20, 1948,\* Dr. A. J. Steiner, a practitioner, brought a female Boxer to this laboratory. The dog had been sick for several weeks and had received no treatment other than hand feeding of raw eggs. When the owner brought the dog to Dr. Steiner, it was decided that the animal should be destroyed and presented to the Department of Animal Pathology for postmortem examination.

On autopsy, the dog showed a generalized icteric condition but the mucous membranes were especially yellow. The liver was greatly enlarged, yellow, and very friable. The spleen also was enlarged. The lungs contained small petechial hemorrhages on the surface. The kidney, liver, lungs, spleen, and heart were cultured. A blood sample was injected into young guinea pigs. These injected animals did not develop leptospirosis.

A microorganism, which proved to be a standard strain of *Salmonella pullorum*, was isolated from the lungs, liver, heart, and spleen of the dog. Serum obtained from the dog just before it was destroyed contained an agglutination titer of 1:2,000 when tested in a tube test against standard *S. pullorum* antigen. It showed a titer of 1:50 on the plate test.

As far as we know, there are no reports of *S. pullorum* in dogs. Wolff, Henderson, and McCallum,\*\* in their study of Salmon-

ella types, found 15 in dogs. *S. pullorum* is not recorded, nor is it mentioned in their literature citations. Since it is quite possible that man may develop salmonellosis through contact with infected dogs, the isolation of *S. pullorum* from a septicemic condition in a dog is most interesting. Salmonella organisms frequently are present in the ovaries of birds and can be transmitted through the egg. It is possible that the dog became infected by eating raw eggs.—R. G. Brown, D.V.M., D. W. Bruner, Ph.D., D.V.M., Alice B. Moran, M.S., Kentucky Agricultural Experiment Station, Lexington, Ky.

### Hyperkeratosis (X Disease)

A 5-month-old calf of mixed breed—Red Poll, Durham, and Jersey—fed a fairly well-balanced ration, became ill with X disease. It was raised on a farm of good black land near Hillsboro, Texas, with 3 other cows, all of which remained in good health. The animal received subcutaneous injections of ascorbic acid and vitamins A and B three times a week. It has gained weight and looks as if it will recover. This calf's eyes are affected and the hide over the entire body is leathery and wrinkled.

About six years ago, I have had 2 cases of X disease. One, a year-old Jersey, recovered after six months treatment. The other one, about 4 or 5 months old, received very little treatment, and finally died.



Fig. 1—Calf, 8 months old, affected with X disease for three months.

I believe there are fewer cases of X disease than the general public believes. In six years, I have had only 10 or 12 such cases.—H. R. Allmon, D.V.S., Hillsboro, Texas.

\*The investigation reported in this paper is in connection with a project of the Kentucky Agricultural Experiment Station and is published by permission of the director. It was supported in part by a research grant from the U. S. Public Health Service.

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## Five Unusual Cases of Canine Rabies

Major DON L. MACE, V.C., U.S. Army

APPROXIMATELY 50 clinical diagnoses of canine rabies were made at the Veterinary Department, Third Medical General Laboratory, Manila, P. I., during the eighteen months from December, 1946, to June, 1948. Five of the cases\* were considered unusual while the remaining cases exhibited typical symptoms. In the typical cases, the owner usually reported that the animal had been restless and irritable for about two days. Animals were not usually suspected of being sick until after it was noted that they could not eat or drink. When presented for examination, most cases exhibited signs of paralysis of the lower jaw and tongue. These mild symptoms were followed by progressive incoordination, paralysis, and death within four to five days from the time they were admitted for diagnosis and treatment. Deranged consciousness was usual; however, vicious, aimless attacks were ordinarily seen only in animals accidentally or purposely disturbed.

The veterinary department of the Third Medical General Laboratory served as the animal rabies diagnostic point for all U. S. Army units in the Philippine Islands. Sick pet animals were submitted for treatment, during which time cases of clinical rabies were often diagnosed. Stray animals that had bitten army personnel were submitted for observation and/or diagnosis. Dead suspect cases were also submitted for laboratory examination. Clinical diagnoses were always confirmed by brain smear and, if this were negative, mouse-inoculation tests were made.

*Case 1.*—This animal was a mixed Terrier-type dog about 14 weeks old. The owner stated that the animal was sick only a few hours prior to admission. Symptoms were intermittent but did not occur at consistent intervals. There was a wild expression of fear, and the animal attempted to climb the sides of the cage. Yelping, clamping of the jaws, and involuntary passage of feces and urine were consistent manifestations with each attack. The symptoms suggested "fright" disease.

An enema was given and the dog regurgitated

wood and bone splinters up to 2 in. in length as well as some small rocks, grass, and cotton rags. Symptoms abated temporarily following small doses of nembutal. Since the intermittent symptoms recurred, a laparotomy was performed but no abnormalities in the abdominal cavity were found. The animal died thirty hours after admission. Postmortem examination revealed a walnut-sized hematoma in the wall of the small intestine. This was thought to have resulted from a partial penetration of the intestinal wall by one of the regurgitated wood or bone splinters.

Following postmortem examination, it appeared that the symptoms in this case could have resulted from intestinal irritation. Rabies was suspected because of the convulsive symptoms and because rabid animals commonly eat such foreign objects as wood, feces, etc. The brain-smear examination and mouse-inoculation tests were positive for rabies. It was suspected that this animal died of rabies, in which case the rabies symptoms were somewhat masked by other symptoms resulting from an intestinal irritation.

*Case 2.*—This dog, of a mixed breed, 10 to 12 weeks old, showed typical symptoms of rabies when presented for diagnosis and treatment. The owner stated that the animal had been mauled by an unknown stray a week before it became sick. The dog died nine days after the reported exposure. At the time of admission, the clinical examination revealed a large opaque scratch on the conjunctival surface of the cornea. At this time, it was thought the scratch on the cornea represented the route of inoculation. Following death and removal of the brain, a puncture wound was detected through the cranium. The cranial penetration appeared to be a tooth wound. It was of such proportions that penetration of the pia and dura mater was suspected. Brain-smear and animal-inoculation examinations were positive for rabies.

It is believed that this case had an incubation period of less than nine days because of the possibility of inoculation of rabies virus infective saliva directly into the cranial cavity.

*Case 3.*—This animal, of mixed breed and about 4 months of age, was presented to the small animal clinic after it had bitten its owner. The animal did not show any definite symptoms of disease; however, the owner stated that it had been a little snippy for about three days. The animal had a severe convulsion and died eighteen hours after it was presented for observation. Brain-smear and animal-inoculation examinations were positive for rabies. It is believed that this case is representative of

\*Kenneth McEntee, Captain, V. C., Richard L. Ott, Captain, V. C., and Francisco S. Cortez, D. V. M., of the Third Medical General Laboratory, Manila, P. I., each participated in observations of 1 or more of the cases reported.

those occasionally seen that die of rabies in a convulsion without showing the classical symptoms of the disease.

*Case 4.*—This animal, of mixed breed, approximately 14 weeks of age, was presented with a history of having been sick three days. It was restless and exhibited vicious, aimless attacks on any moving object. It showed paralysis of the tongue and jaw. Incoördination was accompanied by partial paralysis of the legs. These symptoms continued. No food or water was taken on the fourth, fifth, and sixth days. The symptoms started to abate on the seventh day. The animal took water and food on the eighth day and seemed definitely on the road to recovery. Paralysis of the jaw and tongue was only slightly evident and on the ninth day the animal was able to walk. The symptoms of restlessness and viciousness had almost completely disappeared. Following euthanasia on the tenth day, the animal's brain was harvested. The brain-smear showed extracellular bodies similar to those seen in positive rabies cases. No typical intracellular Negri bodies were seen. The diagnosis of rabies was confirmed by mouse-inoculation.

It was believed that this animal would have recovered and that it represents the relatively rare cases of canine rabies that recover following typical manifestations of the disease.

*Case 5.*—This animal appeared to be of mixed, Dalmatian breed and about 7 months old. It was presented for treatment after the owner suspected it had eaten sodium fluoroacetate (1080) commonly used at military installations as a rat poison. The owner reported an abrupt appearance of persistent fine muscle tremors observed for two hours prior to submission for diagnosis and treatment. The muscular tremors were suggestive of 1080 poisoning; however, they were of a milder nature than are ordinarily seen with this type of poisoning. Death usually follows 1080 poisoning within a few hours. The animal showed some excitement and would not respond to its owner's commands. No other symptoms of disease were observed on admission. The mild symptoms reported continued for two days, during which time the animal showed progressive weakness even though it took some food and water. An expression of anxiety and fear was noted. This symptom, plus the character of a mild deranged consciousness, suggested early symptoms of rabies or some form of encephalitis. Muscular tremors persisted on the fourth day but weakness was so marked that the animal appeared almost comatose. It died unobserved on the fifth day.

Gross findings at autopsy were negative. Brain-smear examination revealed intracellular inclusion bodies typical for rabies. Bacteriologic examinations were negative. The brain-smear diagnosis was confirmed with mouse-inoculation examinations.

## DISCUSSION

The diagnosis of rabies in animals represents an important function of any public health organization engaged in human preventive medicine. Since the Third Medical General Laboratory was designated as the animal rabies diagnostic unit for the U. S. Army in the Philippines, an opportunity was offered for observing both clinical and laboratory means for rabies diagnosis. During the eighteen months mentioned above, approximately 450 rabies-suspect cases were examined. Of these, approximately 50 were diagnosed positive by clinical observation, and approximately 50 heads from dead animals were diagnosed positive by laboratory examination. In almost all cases, the suspect animal had bitten 1 or more persons. The decision as to whether antirabies vaccine should be given a person bitten by an animal depended upon whether the biting animal was subsequently diagnosed as rabid.

In cases where an animal has been killed prior to any professional observation, it is necessary to depend entirely upon the laboratory means of diagnosis. In positive cases, a brain-smear examination can be made and interpreted within an hour or two, except for an occasional positive brain that may not reveal typical Negri bodies, then mouse-inoculation tests must be initiated. A positive brain can sometimes be interpreted as early as six to eight days following mouse-inoculations; however, twenty days are required to rule out the negative suspect cases. Persons are frequently bitten by nonrabid dogs. Occasionally, such a nonrabid animal is killed immediately after it has accidentally bitten someone. The suspect brain is examined by the smear technique and no Negri bodies are found. In this case, the diagnosis is not yet made and the advisability for the use of antirabies vaccine remains uncertain until completion of mouse-inoculation tests. On clinical observation, nonrabid cases never offer such a problem.

From the observations of the 50 canine rabies cases diagnosed clinically and an equal number diagnosed by laboratory means alone, it is believed that clinical diagnosis offers superior advantages since prompt advice can usually be given as to the advisability for or against the use of antirabies vaccine for exposed human beings. In such cases, it is obvious that it is always prefer-

able to have the living animal for clinical observation. The laboratory means of diagnosis can always be used for confirming the clinical diagnosis, and it is the only alternative in cases where the suspect has been killed or has died.

Only 3 of the clinical rabies cases observed at this laboratory would have presented any difficulty in diagnosis for a veterinarian who has observed many rabies cases. Clinical symptoms in the 3 atypical cases were not obvious. The specific diagnosis was made on laboratory examination. In cases where such atypical symptoms are seen, rabies must be suspected until proved otherwise by laboratory examination.

### Ergot Poisoning in Cattle

During the past eight years, ergot poisoning in cattle has been brought to the attention of members of the Department of Veterinary Medicine, Oregon State College, Corvallis, three different times. All 3 cases

were found in the seed-producing area of the Willamette Valley, where English rye grass seed is being produced as one of the main crops. Twelve animals in three small herds were involved. These cattle were on some of the poorer farms where winter feed was scarce and the rations had been supplemented with rye grass screenings. These screenings were heavily infested with ergot (fig. 1).

The lesions found were typical of those described by many authors. The affected legs looked much like a tree that has been ringed for destruction. The wounds appeared to have been made with a knife, so regular were the edges. In 1 case, a toe had been sloughed away. Only one tail seemed to be affected. Infections were present in most of those showing lesions, the affected feet being swollen and discharging pus.

No treatment was recommended other than that the feeding of screenings should be stopped.—J. N. Shaw, D.V.M., Corvallis, Ore.

### X Disease Survey

A preliminary five-state survey of X disease (hyperkeratosis), completed early in October, 1948, disclosed that affected herds suffer heavy losses and that the incidence in beef cattle is about nine times greater than in dairy stock.

Losses in 26 herds observed in 20 counties of Alabama, Georgia, Florida, Tennessee, and Virginia were estimated at over \$110,000, or an average of more than \$4,200 per herd. Some beef-cattle herds were so severely affected that owners were forced out of business, the study revealed.

Participating in the survey, which is under supervision of the U. S. Bureau of Animal Industry, were Dr. W. J. Gibbons, of Alabama Polytechnic Institute, and Dr. A. M. Lee, of the Bureau, along with federal plant and soil specialists.

The disease is now known to exist in at least 32 states. Its cause is obscure, but the possibility that it may be caused by a virus or fungus led the survey group to recommend that, until more is known about this malady, owners of affected animals should quarantine them voluntarily as a protection to others. The survey virtually ruled out the theory that a specific poisonous plant is involved, but it did not disprove theories that a poisonous mineral or nutritional imbalance may be involved.



Fig. 1—English rye grass heavily parasitized with ergot.

# NUTRITION

## Rumen Inoculations in Young Calves

W. D. POUNDEN, D.V.M., M.S., and J. W. HIBBS, Ph.D.

Wooster, Ohio

INVESTIGATIONS concerning factors responsible for unsatisfactory health conditions among the young calves in an experimental herd revealed that rumen microorganisms, characteristically present in mature animals, failed to become established in the calves until after they were several weeks old.<sup>2</sup> Further work indicated that the principal reasons for this were (1) failure of the animals to ingest good roughage or a sufficiently high proportion of it in comparison to the grain eaten, and/or (2) failure of the rumens to become inoculated with usual microflora and microfauna.<sup>3</sup> Characteristic rumen microorganisms failed to establish themselves in the rumens of many of the calves which were considered to be suitably fed and which were used in the investigation when they were kept segregated from other cattle even though housed in the same buildings with them.

Groups of young calves fed various dry feeds were used in the study. The rumens of some of the calves were inoculated by placing small pieces of cud, freshly obtained from cows, into the posterior of their mouths. The group of calves so treated and provided with good quality alfalfa hay maintained the most satisfactory average level of ascorbic acid in the blood plasma during their first few weeks of age.<sup>1</sup> They had smoother coats and a more healthy general appearance than similarly fed but uninoculated calves. These two groups of calves, the inoculated and the other uninoculated, which received only hay for dry feed did not suffer from digestive tract disturbances. On the other hand, the incidence of diarrhea in the calves of all the other groups used, most of which were fed grain in addition to the hay, was over 50 per cent.<sup>3</sup> Apparently, the feed was more

important than the inoculation in assisting the calves to withstand the influence of the factors which instigated attacks of diarrhea.

### COLLECTING CUD

To collect cud, the cow was approached



Fig. 1—Collecting a cud. Grasp cow (top); grasp cud; cud taken from cow.

From the Ohio Agricultural Experiment Station. Published with the approval of the associate director of the Ohio Agricultural Experiment Station, Wooster, Ohio.

from the rear, the right hand was passed under the jaw to prevent the cow from lowering her head (fig. 1 A), the left hand was passed quickly over the face, the left upper lip grasped, and the fingers extended through the interdental space across the palate (fig. 1 B). Most cows immediately opened their mouths. The cud material was removed with the right hand from alongside the tongue and the lower premolars (fig. 1 C). The whole procedure was completed in a few seconds with little annoyance to the animal.

#### EXPERIMENTAL

In addition to the experiments previously mentioned, a number of instances in farm herds have been investigated in which normal development of the rumen in young calves apparently had failed to occur. A few examples follow.

*Experiment 1.*—The barn, which housed a herd of approximately 20 Jersey cattle, was constructed so that the calves, segregated from mature animals, were kept in individual pens in a separate section. In January, the 2 youngest of the several undersized, poorly conditioned, long-haired, rough-coated heifers were picked out for an experimental trial of rumen inocu-



Fig. 2—Taken June 28. Calves born in September; larger one, rumen inoculated in January, smaller one untreated.

lation. These 2 calves, born during the previous September, were approximately equal in size and general condition. One was given a rumen inoculation, using cud from 1 of the cows in the herd. The ration was not changed. It consisted of timothy and clover hay with a 17 per cent protein grain mix of corn, oats, and a commercial mixture containing 33 per cent protein. A considerable difference in rate of growth and improvement in condition was visible between these calves during the next few months (fig. 2).

A second experiment was instituted in this herd, using 2 calves which were removed from their dams on the third day. Each received 5

lb. of milk daily, mixed hay and, after the eighteenth day, a limited quantity of the previously mentioned grain mixture. One of the calves (born January 20) was given a rumen inoculation every fifth day until 3 weeks old. The second calf (born April 7) received the same ration but without any rumen inoculation. The inoculated calf made good normal growth, whereas the other failed to do so, as had been the case with practically every calf in the herd for the past three years. It was interesting to note that the trouble with the calves in this herd had started three years ago, at which time the barn had been rebuilt and the present arrangement, providing more complete segregation of the calves, was instituted.

Even though no special precautions had been taken to prevent it, adequate characteristic rumen flora and fauna had failed to become established in the uninoculated calf by June 28 when it was almost 12 weeks old, and its rough unthrifty condition was very noticeable. Figure 3 shows this latter calf and the inoculated calf. The inoculated calf, born in January, was actually larger on this date than the uninoculated calf, born in September (fig. 2).

*Experiment 2.*—A valuable Holstein-Friesian calf in another herd had been segregated from other stock and given what was considered to be helpful special attention by its caretaker. The calf had failed to make even normal prog-



Fig. 3—Taken June 28. Larger calf born January 20, rumen inoculated. Smaller calf born April 7, untreated.

ress and by 6 weeks of age was pot-bellied, thin, rough-coated, and was not eating dry feeds in a satisfactory manner. Examination of a rumen sample from this calf revealed the absence of both characteristic microorganisms and suitable feed. The former were supplied by use of a cud from a cow in the herd. Milk feeding was reduced from 15 to 8 lb. per day, and plenty of good quality hay was provided. The calf responded nicely and was well on its way to a satisfactory condition within a few days.

The above calf was brought to our attention by Dr. R. Way of Creston, Ohio. Since then, in the course of his practice, he has given this treatment to 8 other calves under similar con-



ditions. Six of the 8 calves responded to treatment.

**Experiment 3.**—Four calves, born consecutively in a small but valuable herd of Guernseys, died at the age of 3 to 4 weeks following severe attacks of bloody diarrhea. They had been fed milk liberally, with mixed hay and a calf starter grain mixture free choice. The last calf to die was available for autopsy. A diagnosis of acute coccidiosis was made on the basis of blood in the feces and severe inflammation of the intestines, with masses of oöcysts in the intestinal walls and contents.

Experimental calves fed moderate quantities of milk and good quality hay, coupled with rumen inoculations, were observed to be healthier than those in groups fed otherwise. This observation encouraged us to suggest a trial of a similar feeding schedule in this herd. A calf, born in the herd the day before the autopsy, was made available for this purpose. Milk was fed at the rate of 5 lb. per day and good quality hay was provided in quantity and kept accessible to the calf at all times. Grain was withheld until the calf was about 1 month old and then it was fed only in limited quantities. Rumen inoculations were given every fifth day during the first month. No trouble was experienced with this calf. The same schedule was followed for the only other 2 calves that have since been born in the herd, and similar results have been obtained.

Control animals have not, as yet, been available for use in this herd. Even if there had been, the smallness of the numbers would preclude the drawing of conclusions, especially as coccidiosis in young calves is so unpredictable. Consequently, these results can only be taken as a slight indication that the feeding schedule used may have favorably influenced the performance of these calves. Justification for this report rests upon the fact that opportunities for continuing this phase of the study do not exist at this time and that others may be in a position to check our findings.

#### SUMMARY

Experimental results are cited which indicate the value of the ingestion of good quality roughage and rumen inoculations with microorganisms from mature animals in the development of early rumen function in young calves.

Investigations conducted in farm herds revealed some unthrifty and disease conditions in young calves which were apparently associated with lack of proper development of rumen function.

The procedures used in attempts to alleviate or prevent the occurrence of these calfhood problems were:

- 1) The feeding of colostrum followed by

whole milk at the daily rate of approximately 0.9 lb./10 lb. of body weight at birth, for at least six weeks.

- 2) The provision of palatable, good quality roughage.

- 3) The repeated oral administration of pieces of cuds from mature animals.

- 4) The withholding of grain until the calves were at least 3 weeks old and consuming appreciable quantities of hay.

#### References

- <sup>1</sup>Hibbs, J. W., and Pounden, W. D.: The Influence of the Ration and Early Rumen Development on the Changes in the Plasma Carotenoids, Vitamin A and Ascorbic Acid, of Young Dairy Calves. *J. Dairy Sci.*, **31**, (Dec., 1948): in press.
- <sup>2</sup>Pounden, W. D., and Hibbs, J. W.: Some Possible Relationships Between Management, Fore-stomach Contents and Diarrhea in the Young Dairy Calf. *J. Dairy Sci.*, **36**, (1947): 582-583.
- <sup>3</sup>Pounden, W. D., and Hibbs, J. W.: The Influence of the Ration and Rumen Inoculation on the Establishment of Certain Microorganisms in the Rumen of Young Calves. *J. Dairy Sci.*, **31**, (Dec., 1948): in press.

#### Amino Acids in Veterinary Medicine

I would urge practitioners to keep in close touch with literature relating to amino acids in veterinary therapy. The use of amino acids makes it possible to maintain complete cellular nutrition in animal or man and totally by-pass the digestive phenomena. Recent studies have proved that antibody production is closely related to protein intake, which suggests the importance of maintaining a proper protein level in animal patients. I believe that, within the next year, one of the most effective therapeutic measures for curbing the heavy death losses of baby pigs will be the use of amino acids injected intraperitoneally, probably in a 5 per cent dextrose solution. —Dr. A. H. Quin, Iowa Vet., Sept.-Oct., 1948.

#### Vitamin B<sub>12</sub> Produced from Mold

Crystalline vitamin B<sub>12</sub> which has been in the headlines as a treatment for pernicious anemia and, more recently, referred to as one of the most important elements of the so-called "animal protein factor," can now be produced by fermentation. This announcement comes from the research laboratories of Merck & Co., Inc. The crystalline vitamin has been isolated from the mold *Streptomyces griseus*, which belongs to the same species that produces streptomycin. If further investigation substantiates the value of B<sub>12</sub> in a nutritional rôle, this discovery is of great significance.

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# EDITORIAL

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## The Growing Family of Veterinary Publications

Current veterinary literature includes a number of widely circulated periodicals, some of which are published by state veterinary associations, others by student chapters,—that is to say, by organizations affiliated with the AVMA. Some of these have been launched rather recently, others have been on the scene for several years. Under the "home rule" doctrine, the policies and exploitations of these publications are local responsibilities as long as they do not violate the basic customs of the profession which, of course, none has any intention of doing. On the other hand, their literary quality does concern the entire profession because printed matter of veterinary origin that is widely read within that circle, and also may be read elsewhere, becomes part of the frontal façade which determines public esteem—or the lack of it.

To speak plainly, the inhibiting effect of bad grammar, inconsistent usage, and other editorial shortcomings can do considerable harm at the expense of a branch of learning striving to keep stride with other branches of science. Consequently, publishing any kind of veterinary periodical is not a trivial matter and justifies emphasizing again the obligations which these affiliated groups assume in carrying out their laudable enterprises. There is no question of the real benefits which a state association monthly can afford the organization in terms of a medium of contact and expression for its members, and in promoting a solidarity or community of interests within the association. The same thing applies in the case of student chapter publications. As the first step toward uniformity and consistency, we suggest that the editors of all veterinary publications follow the correct and accepted rule of writing the names of diseases without capitalizing (mastitis, brucellosis, tuberculosis), while reserving the capitals for generic names (*Streptococcus*, *Brucella*, *Mycobacterium*).

Our purpose is not to criticize but to ex-

press friendly interest and concern, and to point out to the sponsoring societies the importance of their literary undertakings to the whole veterinary profession. The profession passed safely through a period of journalism, of its kind, after the turn of the century which threatened to establish a literary level below acceptable standards. While our periodical literature of that time was ascending from poverty to abundance, much of the good usage characteristic of the nineteenth century virtually vanished. Excellently edited journals were either poorly patronized and, therefore, abandoned, or they fell into inexperienced hands. The editors had the dual task of finding a popular policy and of pondering the prospects of a solvent future. Except the ambition to serve, there was nothing particularly encouraging for the editors who (speaking only of literary excellence) had no critical standards to follow. As a consequence, good grammar and consistently uniform usage were not readily attained.

The object now is to avoid a temporary setback through the instrumentality of bad usage in periodicals sanctioned by our affiliated groups. The difficulty to be overcome stems from the mistaken notion that editorial work is a job anybody can do, whereas, no undertaking has more slips that really show, and tell as much as do errors that find their way into printed matter. "Your editorial slip is showing" fits the case, as the editors of this journal only too well realize. We don't pretend to know all the answers; in fact, difficulty is often encountered in trying to get answers from authorities who are supposed to know. There is nothing more elusive to attain or even to approach closely than consistent perfection in the editorial and publishing phases of journalism.

Yet it is a goal toward which all veterinary editors should constantly strive; it is our responsibility to improve veterinary literature.

# CURRENT LITERATURE

## ABSTRACTS

### Cisternal Puncture in Equine Tetanus

The author treated 23 cases of tetanus in horses by injection of antitetanic serum into the cisterna magna; 21 recovered. The object of direct administration into the subarachnoid space was to avoid the hematoencephalic barrier, which impedes the passage of antibodies from the blood to the central nervous system.

The horse was cast after administering 200 to 250 cc. of 10 per cent chloral hydrate. The neck was clipped in the area of the occiput and first two cervical vertebrae, and swabbed with ether, alcohol, and iodine. A 9-cm., 14-gauge needle was inserted on the median line, 0.5 to 0.8 cm. in front of a transverse plane through the cranial angles of the atlas. The skin was the most difficult tissue to penetrate. The cisterna was 5 to 8 cm. from the surface and 1.4 to 2.5 cm. deep. The atlanto-occipital foramen was 1.5 to 2.2 cm. in diameter when the head was extended. With the head flexed, the foramen was 2.2 to 4.0 cm. in diameter. Specific resistance was offered by the atlanto-occipital membrane and the dura mater. Entry of the needle into the cisterna was accompanied by a definite sensation of puncture, more pronounced in older animals. The head was raised 10 to 15 cm. above the point of puncture, and 70 to 160 cc. of cerebrospinal fluid was allowed to flow from the needle. (The pressure is raised in tetanus to 450 to 550 mm. H<sub>2</sub>O.) Twenty to 40 cc. of antitetanic serum was slowly injected at a temperature of 39 to 40 C., and the animal's head was lowered. Antiserum was also administered intravenously.—[A. I. Fedotov: *Cisternal Injection of Antitetanic Serum in Horses*. *Veterinariya*, 25, (June, 1948): 34-36.]—R. E. H.

### Pathology and Heredity

The question as to why more hereditary variations are found constantly among different species of animals does not permit a definite answer.

It is certain that during the last ten years more genetic pathologic variations have been found and analyzed. This is to be attributed partly to the fact that these variations have been given attention from different viewpoints, but nevertheless it is not to be denied that in modern livestock production, methods are used that are particularly favorable to appearance of mutations and especially to the formation of strains within families.

It has been shown that many variations or abnormalities have been caused by a single recessive factor. If a male, having such a factor in his gene complex, is introduced in a breeding establishment, there is even a possibility that a phenotypic variation or abnormality may show up in the F<sub>2</sub> generation.

Practical breeders have so far paid relatively little attention to these hereditary factors, possibly because they pay a great deal of attention to other factors and characteristics in the selection of breeding stock. On the other hand, the kind of mutations referred to occur relatively seldom.

It is possible to compute mathematically that when a single mutation occurs in a population, after a few years the number of abnormal animals born is practically constant, constituting, however, only a fraction of the population. One is therefore warranted in asking whether these hereditary changes have any significance whatever in the practice of breeding. The answer to this question must be affirmative.

For if we look upon not only the entire breed or population but also every community or herd, the great significance of these hereditary pathologic variations or abnormalities becomes evident. Then we see that within a small district (breeders' association) a high percentage of the females have only a single male as sire or grandsire. In this way, the prospect of the occurrence of variations is much greater than for the entire population of the particular class of animal.

In the analysis of these cases, it interests us primarily to know which individual in the registry has produced the first variations (or mutations?) among his offspring. Inbreeding with this animal must then be avoided. In case of the larger domestic animals, it is extraordinarily difficult to determine if the females are carriers of the recessive factors. This is due to the relatively small number of their offspring. With good reason, therefore, most attention must be paid to the males.

The occurrence of a hereditary variation with horses, which variations according to my knowledge have not yet been described, offers ground for the publication of this report. Last spring several foals were born with an incomplete haircoat. There were areas on the legs, or even on the rump, where the hair was lacking completely and where

the skin resembled a tanned hide. Also, frequently there was lacking a hoof, or the normal connection between hoof and skin was incomplete.

According to reports from different owners, such foals at birth appear healthy and take nourishment but die after several days. Since this skin condition suggested the possibility of a thyroid abnormality, Dr. Hoogland (of the Veterinary Pathology Academy Institute of the University of Utrecht) examined the thyroid gland and the hairless skin histologically.

The thyroid gland was perfectly normal. The skin, however, lacked hair follicles and sebaceous glands. There was no opportunity to section a foal completely and accurately.

Early this year, 5 such abnormal foals were born in the same community in rapid succession. It seemed reasonable to suppose that one or more hereditary factors had caused these abnormalities. A canvass of the owners confirmed this viewpoint. There had been no change in the feeding or management of the mares, and during their gestation nothing peculiar had been observed.

A hereditary factor was suggested even more because perfectly analogous abnormalities are observed in cattle, e.g., the epithello-genesis imperfecta bovum which in America was reported by Hadley and in the Netherlands by Kroon and van der Plank.

This abnormality in the case of the horse might be designated epithello-genesis imperfecta equinum. The histologic picture, for instance, points to an interference in the development of the skin. Although the histologic picture of the thyroid gland was normal, one cannot exclude the possibility that this skin defect is connected with an abnormal functioning of the gland or one of the other glands of internal secretion.

On closer study of the genetics of the abnormal foals, it developed that the dams were related to one another and to the sire, and that the grandsire presumably brought this recessive factor or factors into the herds of this particular district. The stallion was the son of a well-known stud sire of the particular breed, a stud of unusually popular ancestry. Only one other case of this particular abnormality has been reported.

It may be assumed that this well-known foundation sire did not carry the recessive factor but that a mutation occurred later.

After 5 such cases had been studied, the birth of 2 other abnormal foals was reported so that now a total of 7 cases has been described.

The number of horses registered in the herd book in the particular region is relatively small. It was, therefore, not possible to determine with certainty the actual descent of all of the foals. If we assume that the particular

stallion had about 100 descendants, then the number of abnormalities (7) is small.

This small number may be attributed to the fact that a large number of mares in the particular region are not related to the foundation sire, that the factor was recessive, or that the abnormalities were not caused by a single recessive factor, but by several factors.

The stallion, the sire of the abnormal foals, was used for breeding in this region again this year and next spring we shall have reports about results at that time.

One must consider whether the other qualities of the currently used sire are so much higher that a certain percentage of malformations is not a serious drawback. When a new sire is acquired, the animal should be unrelated to this current sire. The sale of the currently used stallion to another district need cause no qualms of conscience. The factor, to be sure, will be spread but the prospects of occurrence of a phenotypic abnormality is not disturbing, except where the mares of the new community are related among themselves and to this sire.

Further reports await the occurrence of new cases.—[Prof. Dr. Van der Plank, *Institute für Tierzucht, University of Utrecht: Pathology and Heredity. Duerst Festschr.—Verbandsdruckerei (1936): 233-237.*]—F. B. Hadley.

#### Inguinal Hernia in a Cow

A veterinarian was called to examine a cow suspected of having mastitis. Clinical examination indicated that an enlargement of the right hind quarter was caused by presence of a portion of the small intestine, which had descended through the inguinal canal.—[H. S. Jespersen, *Yverbrok hes en Ko. Med. Danske Dyrlægefor.* 31, (1947): 30.]—J. Egehaøj.

#### Viability of Dried Viruses

When dried and held under refrigeration, one strain of laryngotracheitis virus was found to be active and infective for 3,359 days, a strain of fowlpox virus for 3,590 days, two strains of pigeonpox virus for 3,605 and 2,602 days, respectively, and one strain of bronchitis virus for 684 days.—[F. R. Beaudette, B. R. Miller, J. A. Bivins, and C. B. Hudson: *The Viability of Dried Viruses of Avian Origin. Am. J. Vet. Res.*, 9, (April, 1948): 190-194.]

#### Treatment of Fowl Cholera with Sulfathiazole

Sulfathiazole is an aid to the control of naturally induced fowl cholera. Incorporation of the sulfonamide drugs for prophylactic purposes in feed as a selling point is not recommended. Experimental fowl exhibited a significant degree of resistance against artificial exposure to fowl cholera following the experimental feeding of 0.5 per cent to 2 per cent



sulfathiazole in the mash. The higher concentration of sulfathiazole administration proved toxic to laying chickens if continued for more than three or four days. The estimated group m.l.d. for small groups of chickens receiving sulfathiazole at the 2 per cent level was 128 times that of the controls, but fowl cholera has occurred after the period of medication both in experimental and naturally infected chicken flocks.—[H. M. DeVolt: *Sulfathiazole as an Aid to the Control of Fowl Cholera in Chickens and Turkeys*. *Am. J. Vet. Res.*, 9, (April, 1948): 215-219.]

### Avian Lymphocytoma

During an observation period of 196 days, 107 chickens died or were moribund in a flock of 123 chickens which had been injected with a tumor preparation plus 125 untreated control hens. In another pen, 101 chickens were injected and 116 remained as controls. Out of this entire group (465), 107 chickens had died and, of these, 65 were found to be infected with lymphocytoma. Although the lymphocytoma reached epizootic proportions, the incidence of fowl paralysis, myelocytoma, and transmissible leucosis was very low.

Tumors occurred in both inoculated and control groups at approximately the same rate, and the greatest incidence was during the first two months of the observation period. It is believed that the immunizing ability of the tissue had been destroyed by the rigorous freezing and thawing.—[Carl Olson, Jr.: *Spontaneous Lymphocytoma in a Flock of Chickens*. *Am. J. Vet. Res.*, 9, (April, 1948): 198-200.]

### Killing Virus of Newcastle Disease

Experiments indicate that the virus of Newcastle disease can be killed when sodium hydroxide in a 2 per cent solution, or liquor cresolis saponatus in a 1 per cent solution, are kept in contact with the virus for a five-minute reaction period. Similarly, phenol at a 3 per cent concentration will kill the virus in three to five minutes. Lower concentrations were ineffective in destroying the virus.—[C. H. Cunningham: *The Effect of Certain Chemical Agents on the Virus of Newcastle Disease of Chickens*. *Am. J. Vet. Res.*, 9, (April, 1948): 195-197.]

### Modified Newcastle Vaccines

Newcastle virus which has been hamster-adapted shows a decreasing pathogenicity for chickens while retaining an immunizing value of a high order both to challenge by injection and by contact. Susceptible birds used as contact controls with birds injected with all vaccines failed to show clinical evidence of spread of the vaccine strains, although there appeared to be some resistance to challenge

injection in these birds as compared with the regular controls.—[R. L. Reagan, M. G. Lillie, L. J. Poelma, and A. L. Brueckner: *Modified Newcastle Virus Vaccines*. *Am. J. Vet. Res.*, 9, (April, 1948): 220-224.]

### Trichomoniasis in Pigeons

When 122 pigeons were treated with various concentrations of copper sulfate, it was found that the most effective concentration for non-breeding pigeons was 100 mg. of the drug per 100 cc. of drinking water. The concentration most effective for breeding pigeons without producing evidence of toxicity was 35 mg. of the drug per 100 cc. of water.

Greater concentrations were markedly toxic; the manifestations resulting were depression, loss of weight, and possible liver damage.—[Daniel S. Jaquette: *Copper Sulfate as a Treatment of Subclinical Trichomoniasis in Pigeons*. *Am. J. Vet. Res.*, 9, (April, 1948): 206-209.]

### Carbon Tetrachloride in Horses

Carbon tetrachloride is the standard Soviet treatment for strongyloides and ascarids in horses. While phenothiazine is considered effective for strongyloides, and carbon disulfide for ascarids,  $CCl_4$  is the officially authorized anthelmintic for a mixed infestation. The authors review, critically, Soviet reports on the toxicity of  $CCl_4$  for horses. The fatalities are attributed to errors in administration rather than the toxicity of the drug. In some cases,  $CCl_4$  was deposited in the lungs. In other cases, calomel, which is incompatible with  $CCl_4$ , was given as a purgative. In many instances, anthelmintic treatment was contraindicated by the presence of other diseases.

The authors treated 6,000 horses of all types and classes, except mares late in gestation. There were no deaths. The animals were observed for at least three days. There was a decrease in consumption of concentrates and increased thirst for one or two days. Each animal was carefully examined for contraindications before treatment. Fecal examinations were made to determine whether the degree of infestation with ascarids was great enough to require purgation. This was considered necessary in only a few young animals and a saline purgative was used. The dose of  $CCl_4$  was 10 to 40 cc. in gelatin capsules or by stomach tube. There was no change in the feeding or working régime. It is recommended that each new lot of  $CCl_4$  be tested on a small group of horses, but no result of such tests are given.—[V. C. Yershov, N. V. Demidov, and D. I. Panasyuk. *Skriabin Inst. of Helminthology. The use of Carbon Tetrachloride in Parascariasis and Strongyloidiasis of Horses*. *Veterinariya*, 25, (Aug., 1948): 18-22.]—R. E. H.



## BOOKS AND REPORTS

### Nutritional Anemia

The text is based on a symposium conducted by internationally known authorities under the auspices of the College of Medicine of the University of Cincinnati. Eleven investigators reported on their research work covering chemical, physiological, and clinical phases of the problem of anemia. Although the work is primarily beamed at human anemia, much of the basic research work was conducted on animals and may be applied in veterinary medicine, particularly in so far as anemia is a condition met with in every day veterinary practice.

After an introductory paragraph on the physiologic implications of the anemic state, there are additional papers on the response which may be expected following administration of folic acid, iron, copper, and vitamins. The physiologic response of the body to the administration of minerals and of vitamins is discussed in detail and the findings are directly interesting to practicing veterinarians. This is definitely a book which anyone interested in nutrition and its effects upon anemia will be interested in, whether his field is human medicine or veterinary medicine.—[*Nutritional Anemia, Volume I of Symposium on Nutrition. Edited by Arthur Lejca, with a scientific advisory committee. Cloth. 194 pages. The Robert Gould Research Foundation, Inc., Cincinnati, Ohio, 1947.*]

### Veterinary Education

This booklet is a reprint of an inaugural lecture given at the time that the author was inducted into the chair of animal pathology at Cambridge University. It traces, in general terms, the progress of veterinary medicine down through the ages, beginning with the prehistoric records and continuing down to the modern conceptions of veterinary medicine and its relationship to the protection of animal health and the livestock industry in Great Britain.—[*Veterinary Education, An Inaugural Lecture. By W. I. B. Beveridge. Paper. 40 pages. Cambridge University Press.*]

### Industrial Research

Southwest Research Institute, San Antonio, Texas, has published a brochure delineating its functions and services. This brochure describes the facilities and operating methods of the institute, and outlines some of the services performed by its sister scientific organizations, the Foundation of Applied Research and the Institute of Inventive Research. All are nonprofit units. A copy of the brochure may be obtained

by writing to Southwest Research Institute, Box 2296, San Antonio, Texas.

### Guide to the Dissection of the Dog

This second edition of the Guide is produced only one year after the first because of the improvements suggested by use of the book in teaching a freshman class in anatomy at each of two schools, and because information about the central nervous system, the cranial parts of the digestive and respiratory passages, the external ear, and the kidneys had necessarily been omitted in order to have the first edition ready at the beginning of a school year.

Besides these additional structures, the book contains several new illustrations and many drawings used in the first edition but improved in redrawing. Anatomical and grammatical or typographical errors have been corrected in the new edition.

Finally, the book has been substantially bound to resist hard usage in the dissecting laboratory, which means many years of wear as a reference book on the shelf of the practitioner.

It is truly a worth-while book, even for those who secured copies of the first edition, and more so for those practitioners who work with dogs but have had only the older texts as reference material.—[*Guide to the Dissection of the Dog. By Malcolm E. Miller. Cloth. 427 pages. 187 illustrations. Edwards Brothers, Inc., Ann Arbor, Mich. 1948.*]

### Histopathology of Acute Laminitis [Founder]

The early morphologic changes in the laminae were studied in 18 cases of laminitis of which 6 were postparturient, 3 were alimentary in origin, and 9 were produced experimentally. The experimental cases were produced by giving one liter of a broth culture of *Escherichia coli* after a 48-hour fast and then allowing the animals to eat rye freely. The symptoms of laminitis usually appeared on the second day, following violent diarrhea and fever. Since it appeared that the principal change in laminitis occurred in the laminar corium, special attention was paid to the histology of the corium of the foot and of the chestnut. The latter structure was selected because it is not subject to secondary changes due to the weight of the body. Specimens from various portions of the hoof and the chestnut were obtained by biopsy and from postmortem material.

The author describes briefly the normal process of cornification in the matrix of the wall, sole, frog, periople, and chestnut. Detailed descriptions are presented of the histologic appearance of specimens from the cases of laminitis. Particular attention is given to morphologic evidence of alterations in keratogenesis. The changes were characterized by disappearance of the onychogenic fibrils and the keratohyaline granules in the zone of cornification. It is concluded that laminitis is a disturbance resulting from a lack of some substance re-

quired for the normal process of cornification in the hoof. The decreased strength of the laminae results in their stretching when body weight is applied. In serious cases, there may be necrosis of the laminae and separation of the os pedis. The thesis is well illustrated with 93 excellent photomicrographs which demonstrate the pathologic changes.—[*Studies on the Histopathology of Acute Laminitis*. By Nils Obel, Royal Veterinary College, Stockholm. Almquist and Wiksells Boktryckeri AB, Upsalla. 95 pages. 106 figures. 1948.]—A.G.K.

### Chicken Recipes

This booklet lists 77 recipes for preparing Pinafore chicken. This chicken, by the way, is all inspected by Dr. L. A. Blank, who is the veterinarian at the Chicago Western Corp., publishers of this booklet. Copies may be obtained by writing to the above company at 4123 W. Grand Ave., Chicago, Ill. Price, 10 cents.

### Private Enterprise or Government in Medicine

This is a judicious and authoritative book by an author who has made a long-time study of the medical care systems in the United States and other countries and who is well qualified to discuss this most contentious topic in the field of medicine today.

The book discusses the tactics and strategy of the struggle between opposing forces; the legislative steps that have been taken and need to be taken; the private interests which are involved in the necessary steps; the ideal physician-patient relationships; and the ability of private enterprise to discard what is outmoded in our medical system or develop supplementary methods to assist in making the present more practical.

Although the book deals with a problem in so far as it now applies to human medicine, veterinarians will be interested in it from the standpoint of predicting or preparing for the trend which is likely to be followed in veterinary medicine as well.—[*Private Enterprise or Government in Medicine*. By L. H. Bauer, New York, Cloth. 201 pages. C. C. Thomas, publisher, Springfield, Ill. 1947. Price \$5.00.]

### Anatomy and Physiology

This is a textbook designed and written for the use of students in human medicine. It develops into rather an interesting combination of anatomy and physiology. This is in line with the newer trend of teaching in many of the veterinary colleges also. Many portions of the book can be used directly by the veterinary practitioner, but the text will be of particular interest to those veterinarians who are teaching in the departments of anatomy and physiology at the various veterinary colleges. Those chapters which deal with the

anatomy of the human body would not be of interest to veterinarians by and large. However, many of the chapters on the special senses and on the physiology and anatomy of the individual cells are highly interesting. The relationship between the various parts of the cells themselves and between the cells and the tissue fluids is well explained and of fundamental importance in veterinary medicine as in human medicine.

Much of the information on the physiology of digestion is just as applicable to veterinary medicine as to human medicine. However, the material has not been compiled chiefly for veterinarians and will need a considerable amount of sorting for direct application.—[*A Textbook of Anatomy and Physiology*. By D. C. Kimber, C. E. Gray, C. E. Stackpole, and L. C. Leavell. 12th edition. Cloth. 773 pages. 360 illustrations. Published by the Macmillan Company, 60 Fifth Ave., New York, 1948. Price \$4.00.]

### Food and Nutrition Research

This is a compilation of more than 4,400 separate research products which are listed according to the type of work being studied. Each product, each laboratory, and each supporting organization has a code number. This book was prepared primarily for the use of research workers and it lists simply the subject being studied, and does not record any of the findings or conclusions. The listing of the subjects being studied is followed by an index of organizations, an index of personnel, and, finally, an index of material contained within the booklet.

It is designed to give research workers information regarding other institutions and other workers who are interested in the same subject.—[*A Survey of Food and Nutrition Research in the United States, 1947*. Compiled by Mrs. Mildred S. Ragan for Food and Nutrition Board, National Research Council, Washington, D. C. Paper. 306 pages. July, 1948. Price \$1.00.]

### Jensen's Papers

This volume contains 37 selected papers written by C. O. Jensen. They are arranged in chronological order, from 1886 to 1908.

The versatility of the man is indicated by the aspects from which his studies were made and the range of subjects on which he reported. Physiology, pathology, bacteriology, and surgery of horses, cattle, sheep, pigs, dogs, and cats appear in this group of papers. Some have been translated into English, others into German.—[*Selected Papers by C. O. Jensen*. Edited by M. Christiansen and H. O. Schmit-Jensen. Paper. 681 pages. Illustrated. Printed in Copenhagen by H. P. Hansen for Einar Munksgaard. 1948.]

# THE NEWS

## Eighty-Sixth Annual Convention

Detroit—July 11-14, 1949

Plans are under way for the AVMA annual meeting in Detroit next July. As previously announced, the dates of the 1949 meeting are about a month earlier than usual in order to avoid conflict with the Fourteenth International Veterinary Congress to be held in London in August.

The last AVMA convention held in Detroit was in 1929; the 1900 and 1916 sessions were also held there. In 1900, the total number of members and visitors registered was 283; in 1916, the number was about 750. The meeting this year will probably attract an attendance of 2,000 or more.

The Book-Cadillac and Statler hotels will serve as joint headquarters for the 1949 convention, an arrangement necessitated by the size of AVMA conventions in recent years. In addition, it will probably be necessary for the local committee on hotels and housing to obtain an allotment of rooms from other hotels in order to insure an ample number for those attending the convention. Announcement regarding hotel reservations and other arrangements will be published in the February JOURNAL and succeeding issues.

### LOCAL COMMITTEE APPOINTED

The following officers and chairmen of the Committee on Local Arrangements have been selected by the Executive Committee of the Michigan State Veterinary Medical Association for the Detroit convention.

### Committee on Local Arrangements

#### Eighty-Sixth Annual Convention

Detroit—July 11-14, 1949

#### OFFICERS

*General Chairman.*—Dr. B. J. Killham, Anatomy Building, Michigan State College, East Lansing.

*Co-Vice General Chairmen.*—Dr. F. D. Egan, 38415 Grand River, Farmington; Dr. L. H. LaFond, 2191 West Eight Mile Road, Detroit.

*General Secretary.*—Dr. C. F. Clark, 1100 Burcham Drive, East Lansing.

#### COMMITTEE CHAIRMEN

*Entertainment.*—Dr. Robert F. Willson, 11365 Manor Street, Detroit.

*Exhibits.*—Dr. H. O. von Rosenberg, 481 Neff Road, Grosse Pointe 30.

*Garages and Airports.*—Dr. H. E. Burdick, 23524 Grand River, Detroit.

*Hotels and Housing.*—Dr. Stephen R. Kelly, 19233 Couzens Highway, Detroit.

*Meeting Rooms and Equipment.*—Dr. D. J. Francisco, 18959 Ashton Road, Detroit.

*Motion Pictures.*—Dr. W. A. Higgins, 18900 St. Mary's, Detroit.

*Public Relations and Publicity.*—Dr. C. S. Bryan, Veterinary Hospital, Michigan State College, East Lansing.

*Reception and Hospitality.*—*Co-chairmen*—Dr. G. W. Reed, Anatomy Building, Michigan State College, East Lansing; Dr. O. J. Sorenson, 18054 Peoria Avenue, Detroit.

*Registration and Information.*—*Co-chairmen*—Dr. David Ellis, Memphis, Dr. P. V. Howard, 4011 Hunsberger, N.E., Grand Rapids.

*Women's Activities.*—*Chairman*—Mrs. R. A. Runnells, 511 Bailey, East Lansing. *Co-Vice Chairmen*—Mrs. D. L. Caswell, Royal Oak; Mrs. S. R. Elko, 13125 Hamilton Avenue, Highland Park. *Secretary*—Mrs. F. D. Egan, 38415 Grand River, Farmington.

### 14th International Veterinary Congress Preliminary Official Announcement

Shortly before the JOURNAL went to press, a copy of the preliminary announcement of the 14th International Veterinary Congress to be held in London next August was received. Space does not permit publication of all of it in this issue, but the following parts will be of interest to readers at this time. Next month, information will be published about applications and cost of subscriptions for membership in the Congress, travel and hotel accommodations, and more about the arrangements for the AVMA European tour which was announced in the December JOURNAL (p. 605).

#### OBJECT

The object of the International Veterinary Congresses is the advancement of the science and practice of veterinary medicine and surgery. To this end, discussions are arranged on what are considered to be the most important scientific and practical questions of the day, with a view to their solution by a mutual interchange of opinions and personal experience.

#### PROGRAM

As it is considered that the present world food situation is the most important scientific and practical question of the day, the Congress

program has been based on this theme. Every morning, there will be a plenary session at which a paper will be presented by some person of world reputation on the veterinary profession's contribution to some aspect of world food production. Sectional meetings will be held in the afternoons. The program for these is designed to cover a wide range of subjects, and whatever the specialty of any member of the Congress he should find papers of direct interest to him.

#### EXECUTIVE COMMITTEE

The President—Sir Daniel Cabot  
Vice-President—Professor J. B. Buxton  
Honorary Secretary—Dr. W. R. Woodbridge  
Honorary Treasurer—Mr. G. N. Gould  
General Secretary—Mr. W. G. R. Oates  
Organizing Secretary—Lt. Col. J. A. Gordon Roberts

All communications should be sent to the organizing secretary at:—10 Red Lion Square, London, W. C. 1.

#### ADMINISTRATION

*Place of Meeting.*—The meetings will take place at the Central Hall, Westminster, and in Church House, Westminster, London, S. W. 1.

*Opening Date.*—The Congress is under the patronage of the King, and it is hoped that the Duke of Gloucester, who is the president of the Royal Veterinary College and Hospital of London, will be able to open the Congress.

The first session will take place at 10 a. m. on Monday, Aug. 8, 1949, and the Congress will last until Saturday, August 13, inclusive. Registration of members will take place at Central Hall on Sunday, August 7, from 2 p. m. onward. Certain social functions will be held Sunday evening, August 7.

A detailed program, showing the times at which the general and sectional meetings will take place and giving the names of speakers and titles of papers, will be published in the official program to be issued later.

*Social Functions.*—Many official and other social functions will be held during the week of the Congress, at which delegates will be able to meet their confreres from other countries. Details of these functions will be given in the official program.

*Excursions.*—During the week of August 15 to 20, visits will be arranged to places of interest to veterinarians such as veterinary research stations, veterinary colleges, abattoirs, breeding and racing establishments, etc. Every effort will be made to show, and to give information about, the latest developments in veterinary research.

Tours will also be arranged to places of interest and beauty spots in the British Isles.

*Exhibition.*—An exhibition of the latest instruments, appliances, laboratory equipment, drugs, disinfectants, antiseptics, books, etc., will be arranged in premises convenient to the Central Hall. Admission to members will be free.

(To be continued)

#### AVMA—Vocational Agriculture Conference

A joint conference of AVMA representatives and leaders in the field of vocational agriculture was called by Dr. A. H. Quin, Kansas City, Mo., chairman of the AVMA Public Relations Committee, and Dr. W. T. Spanton, chief of the Agricultural Education Service, U. S. Office of Education, Washington, D. C. The meeting was held in Kansas City, Mo., Oct. 12, 1948.

The purpose of the meeting was to effect a better mutual understanding of the fields of service rendered by these two groups and to discuss ways to improve relations and cooperation between workers in both fields. Further, it is hoped that the concordat of understanding worked out at national levels will serve as a guide for agreement at the state and local levels.

Dr. Spanton discussed briefly the history and development of the activities of the vocational agriculture service. The immensity of this development impressed the veterinarians present. The activities of the federal Office of Education were explained and it was pointed out that it is not part of the U. S. Department of Agriculture.

Dr. L. M. Hurt, Los Angeles, Calif., AVMA president, presented the aims, ideals, and desires of the veterinary profession and the AVMA.

Following these presentations, all members in attendance discussed the extent and scope of the service rendered by vocational agriculture instructors and veterinarians. Because of these closely allied activities, it was agreed that differences are apt to arise and that there is a definite need for understanding between the members of both groups. The following joint statement of policy has been formally approved by the participating agencies:

1) In the majority of areas, relations between vocational agricultural teachers and veterinarians are constructive and improving. In some instances, frictions of a local nature have developed.

2) It is agreed that both groups are entirely essential for a progressive and successful livestock industry. Further, that maximum service to the livestock industry will be attained only by day-to-day working cooperation of these groups with others dedicated to the same objectives.

3) It is agreed that the primary rôle of the vocational agriculture instructor is the furtherance of approved practices embracing animal husbandry, including sanitation, management, nutrition, and related educational subjects. The primary rôle of the veterinary profession is the prevention, diagnosis, and treatment of animal diseases and the protection of the public health as it relates to diseases transmissible from animal to man.

4) In all communities where qualified veterinary service is available, vocational agriculture instructors can be of service to livestock and poultry raisers by advising them to consult a veterinarian whenever animal and poultry diseases are involved.

5) In all areas where qualified veterinary service is available, vocational agriculture in-



structors should cooperate fully with a veterinarian in all instances where a veterinary medical product or practice is involved.

6) In areas where no qualified veterinary service is available, vocational agriculture instructors should be guided in rendering service to livestock and poultry producers by limiting their activities to procedures approved by state and federal livestock sanitary officials and other approved animal disease control agencies.

7) Vocational agriculture instructors should cooperate fully in efforts to acquire and establish qualified veterinary personnel in areas needing such service.

8) In all communities where veterinarians are not acquainted with vocational agriculture instructors and their programs, it is recommended that they immediately contact said instructors and establish cordial, working relationships. Further, that vocational agriculture instructors contact their veterinarians in like manner.

9) The broad areas of agreement above outlined lead us to urgently recommend that similar conferences should be held at state and local levels.

10) As veterinarians and as leaders in the field of vocational agriculture, we pledge our best efforts to the continued advancement of the livestock industry and agriculture.

Drawn at Kansas City, Mo., Oct. 12, 1948, by:

For the AVMA	For Vocational Agriculture
Dr. A. H. Quin, Kansas City, Mo.	W. T. Spanton, Washington, D. C.
Dr. L. M. Hurt, Los Angeles, Calif.	Elmer Johnson, Washington, D. C.
Dr. S. H. Rosner, Kansas City, Mo.	John Farr, Washington, D. C.
Dr. K. G. McKay, Berkeley, Calif.	Edward Naugher, Washington, D. C.
Dr. E. G. Bailey, Dexter, Mo.	J. S. Hollenberg, Washington, D. C.
Dr. C. D. Van Houweling, Chicago, Ill.	Wm. Felton, Stillwater, Okla.
Dr. C. S. Hulén, Columbia, Mo.	L. B. Pollom, Topeka, Kan.
Dr. C. W. Bower, Topeka, Kan.	C. J. Early, Jefferson City, Mo.
Dr. J. W. Lumb, Manhattan, Kan.	

### Ralston Purina Research Fellowship Awards

Beginning with the 1949-1950 school year, the Ralston Purina Company will inaugurate a program of Research Fellowship Awards to assist in the training of additional personnel for furthering the interests of agriculture, particularly the livestock and poultry industries. Awards will be made in the fields of (1) nutrition and physiology research as applied to dairy, poultry, and animal husbandry; and (2) research in transmissible diseases of livestock and poultry.

Any individual qualified for graduate study in any land-grant agricultural college or approved veterinary college (including Canadian colleges) who possesses desirable personal qualifications and submits a completed application is eligible. Application must be received by the Awards Committee by March 1 of the year in

which the award is to be made. Awards (\$1,440 annually) will be on an annual basis; the recipients will be eligible for reappointment not to exceed a tenure of three years.

Members of the Ralston Purina Research Award Committee are Drs. R. M. Bethke, Ohio Agricultural Experiment Station, representing the Poultry Science Association; M. A. Emerson, Iowa State College, representing the AVMA; K. L. Turk, Cornell University, representing the American Dairy Science Association; W. M. Beeson, Purdue University, representing the American Society of Animal Production; and C. A. Elvehjem, Wisconsin College of Agriculture, representing the Association of Land-Grant Colleges. At the expiration of the term of each organization's representative, that organization will make succeeding appointments for periods of three years.

Application blanks may be obtained from the Ralston Purina Research Awards Committee, c/o Mr. J. D. Sykes, Ralston Purina Company, St. Louis 2, Mo.

### Veterinary Profession Represented at Land-Grant College Meetings

The veterinary profession will be represented at future meetings of the Association of Land-Grant Colleges and Universities as a result of action taken at the Association's meeting in Washington on Nov. 9-11, 1948. A division of veterinary medicine, similar to the divisions of agriculture, arts and sciences, engineering, and home economics was formed. It includes all veterinary science units at land-grant institutions, whether degree-granting or not.

Deans and other administrative officials of universities offering veterinary training will gather at future association meetings to discuss policies and plans affecting their programs of instruction. They will also join with their colleagues from other divisions in striving to improve educational programs in the 53 land-grant institutions.

### Chemical-Biological Coordination Center

At the annual conference of Research Workers in Animal Diseases on November 29 in Chicago, Ill., Doctor J. R. M. Innes\* discussed the functions and aims of the recently established Chemical-Biological Coordination Center of the National Research Council, Washington, D. C., as related to the chemotherapy in veterinary medicine. Some attention was given to the history of chemotherapy and methods of chemotherapeutic research in laboratories; Dr. Innes then told how discoveries had been made, e.g. (1) by empiricism, (2) by accident, (3) by observation, (4) by analogy and imitation, and (5) by specific experimental approach. The Center has been organized to collect information on chemical structure as related to bio-

\*Dr. Innes, who joined the staff of the Chemical-Biological Coordination Center, formerly worked in the Institute of Animal Pathology, Cambridge, England, studied for some time in pathologic institutions in Munich and Freiburg, Germany. He also acted as head of the Veterinary Field Station, Biological Department, Imperial Chemical Industries, Manchester, England, where he directed work devoted to chemotherapy of animal diseases.



logic activity; it is not a research foundation nor does it subsidize research. Information from available medical, veterinary, and biologic literature is abstracted and identified from both the chemical and biologic aspect by a complex system of coding.

Another important function of the Center is to sponsor screening programs at recognized institutions by making available chemicals selected from lists submitted by outside laboratories.

## STUDENT CHAPTER ACTIVITIES

**Iowa Chapter.**—At the December 8 meeting of the Iowa State College Student Chapter of the AVMA, Mr. Harry D. Linn, state secretary of agriculture, entertained the group with an illustrated lecture of his hunting experiences.

s/ROLAND C. BUNGE, *Secretary*.

**Ohio Chapter.**—At the November 9 meeting, Edward P. Donovan, a senior, received the 1948 Borden Scholarship Award for his scholastic record of slightly below a straight A average. Dr. Bland L. Stradley, vice-president of the Ohio State University, spoke on "Scholarship."

s/DALE D. KEYSER, *Secretary*.

**Missouri Chapter.**—The Veterinary Club of the University of Missouri met in Connaway Hall on Nov. 8, 1948, with 62 members present. After the business meeting, two U. S. Army training films were shown, and plans were made for the informal dance November 12.

s/HAROLD C. ECKHOFF, *Secretary*.

**Washington State Chapter.**—First term officers for the Washington State Student Chapter of the AVMA are E. Diamond, *president*; F. Wedam, *vice-president*; M. Drake, *secretary*; K. Binkley, *treasurer*; E. Hafen, *publicity chairman*; and D. Gates, *athletic director*.

The 1948-1949 program was inaugurated by Dean R. E. Nichols on October 5, and plans for future meetings were discussed. On October 19, the Borden Award was presented to Leo Bustad, and the film "Science of Milk Production" was shown. Refreshments were served to the 135 who attended the meeting.

The film "Gel-Foam in Surgery" was presented at the November 2 meeting, and plans were laid for the Hobo Dance on November 20. Dr. G. C. Holm, vice-director, Agricultural Experiment Station, University of Idaho, was guest speaker at the November 16 meeting and Dr. J. E. McCoy, professor of veterinary Medicine, gave an illustrated lecture on "Trench Mouth in Dogs."

s/EDWARD DIAMOND, *President*.

## WOMEN'S AUXILIARY

**The Student Loan Fund.**—The Women's Auxiliary to the AVMA has as its major project a student loan fund, with traditions as old as the Auxiliary. All of the state, provincial, and

regional associations are sincerely interested in helping young men, who need financial aid, to finish their courses in veterinary medicine.

The student desiring a loan should write to the secretary of the Auxiliary, Mrs. C. L. Miller, 348 Forest Ave., River Forest, Ill., for an application blank. When the application is completely filled out, it must be signed by two guarantors, the applicant, the president of the Women's Auxiliary (Mrs. A. E. Bott, Country Club Place, Belleville, Ill.), and the executive secretary of the AVMA. It must also be accompanied by a recommendation from the dean of the school the applicant is attending. The maximum loan is \$200, with interest at 4 per cent.

The funds available for student loans are limited, and consideration of applications will be made on the basis of need and the time the application is received.

The Women's Auxiliary wishes to be of real service to young men studying veterinary medicine.

s/(Mrs. A. E.) ETHELYN BOTT, *President*.

**Mrs. Coughlin, Second Vice-President.**—Because it is important that the wives of veterinary students have an active interest in the selected profession of their husbands, the second vice-president of the Women's Auxiliary to the AVMA, Mrs. Dennis Coughlin, 173 Yale



Mrs. Dennis Coughlin

Ave., Knoxville, Tenn., sponsors the development of the Junior Women's Auxiliary. Mrs. Coughlin is a capable and interested leader in this group. Wherever there is a student chapter of the AVMA, a Junior Women's Auxiliary has been established or is in the process of being organized.—Ethelyn Bott.

**Pennsylvania Auxiliary.**—There were 70 members (the largest number to date) of the Women's Auxiliary to the Pennsylvania State Veterinary Medical Association present at the sixty-sixth annual convention of the PSVMA. Officers elected were Mrs. Howard Custis, Oxford, *president*; and Mrs. J. J. Thomas, Le Moyne, *secretary-treasurer*.

## APPLICATIONS

The listing of applicants conforms to the requirements of the administrative by-laws—Article X, Section 2.

### First Listing

MARION, LOUIS W.  
2125 W. 10th Ave., Gary, Ind.  
D.V.M., Michigan State College, 1946.  
Vouchers: F. Thorp, Jr., and R. F. Borgman.

### Second Listing

Bearint, Beryl I., 7125 Darby Ave., Reseda, Calif.  
Clarke, James N., 15 Sherwood Pl., St. Vital, Man.  
Cowan, William H., 426 W. North Ave., Baltimore 17, Md.  
Diaz, Alfredo Reinaldo, Casilla 207, Ovalle, Chile.  
Langdon, Arthur M., 1517 Pennsylvania Ave., R.D. No. 5, Meadville, Pa.  
Lewis, Robert V., 1117-L Main St., Watsonville, Calif.  
Loveday, Richard K., P.O. Box 1620, Johannesburg, Transvaal, South Africa.  
Marcus, Carlton P., 1101 Taylor Ave., Halthorpe, Md.  
Merchant, Eustace S., Route 1, Box 210, Reno, Nev.  
Mesenbrink, Roy L., 201 Avery Dr., Kirkwood 22, Mo.  
Mowat, Ian, P.O. Box 1620, Johannesburg, Transvaal, South Africa.  
Young, Floyd W., 1100 Wildwood Dr., East Lansing, Mich.

### 1948 Graduate Applicants

#### First Listing

The following are graduates who have recently received their veterinary degrees and who have applied for AVMA membership under the provision granted in the Administrative By-Laws to members in good standing of junior chapters. Applications from this year's senior classes not received in time for listing this month will appear in later issues. An asterisk (\*) after the name of a school indicates that all of this year's graduates have made application for membership.

#### Alabama Polytechnic Institute

DOUGLAS, THOMAS J., D.V.M.  
Box 992, Greenville, S. Car.  
Vouchers: W. J. Gibbons and H. E. Riddle.  
WATSON, B. LAMAR, D.V.M.  
1074 S. Florida Ave., Lakeland, Fla.  
Vouchers: J. V. Knapp and T. P. Culpepper.

#### Texas A. & M. College

BAKER, OWEN D., D.V.M.  
Drew Veterinary Clinic, Rt. 4, Monticello, Ark.  
Vouchers: T. D. Henrickson and H. B. Elliott.  
SWITZER, WILLIAM P., D.V.M.  
1104 7th St., Dodge City, Kan.  
Vouchers: W. W. Armistead and R. A. Packer.

#### University of Chile

GOIC, ROBERTO J., M.V.

Casilla 9294, Santiago, Chile.  
Vouchers: J. San Miguel and O. Bastias.

### Second Listing

#### Ontario Veterinary College

Amarasinghe, Don W., D.V.M., U. S. Bureau of Animal Industry, 4104 S. Halsted St., Chicago, Ill.

#### Texas A. & M. College

Roberson, Albert, D.V.M., c/o General Delivery, Nocona, Texas.  
Thompson, G. Carl, D.V.M., American Embassy, Asuncion, Paraguay.

## U. S. GOVERNMENT

**Veterinary Personnel Changes.**—The following changes in the force of veterinarians in the U. S. BAI are reported as of Nov. 15, 1948, by Chief B. T. Simms.

#### TRANSFERS

Harrison B. Ballou, from New York, N. Y., to Albany, N. Y.  
Elvin R. Coan, from Boston, Mass., to Charleston, W. Va.  
William F. Dorgan, from Honolulu, Hawaii, to Washington, D. C.  
Martin Kagan, from Boston, Mass., to Thousand Island Park, N. Y.  
Robert L. Knudson, from Atlanta, Ga., to Columbus, Ohio.  
William T. Shalkop, from Albany, N. Y., to Washington, D. C.  
Hayward H. Taylor, from Gouverneur, N. Y., to Kingston, N. Y.  
Harry M. Williams, from Portland, N. Y. to Nampa, Idaho.

#### RESIGNED

Albert Batista, Los Angeles, Calif.  
Robert B. Gafford, Nashville, Tenn.  
Walter B. Groan, Mexico City, Mexico.  
Grady G. Wallace, Louisville, Mo.

#### RETIRED

Albert J. De Fossett, Columbus, Ohio.  
Harvey J. Lawrence, Sioux City, Iowa.  
Charles A. Swanson, Los Angeles, Calif.  
Flavus Weaver, Chicago, Ill.

#### REMOVED

Claude C. Rayfield, Baltimore, Md.

• • •  
**Research Entomologist.**—The Board of U. S. Civil Service Examiners, Army Chemical Center, Md., announces an amendment to the form for open competitive examination for research entomologist in applicable experience or training and in age limits. This may be obtained by writing to the executive secretary, Board of U. S. Civil Service Examiners, Army Chemical Center, Md.

• • •  
**Honor Dr. Bird.**—The American Feed Manufacturers Association awarded its first annual prize of a medal and \$1,000 to Dr. H. R. Bird, in charge of poultry research, U. S. Department of Agriculture, for work in connection with the feeding of soybean meal to poultry.

## AMONG THE STATES AND PROVINCES

### California

**USDA to Close Remount Station.**—The U. S. Department of Agriculture has announced the closing, about Jan. 1, 1949, of the Agricultural Remount Station at Pomona, widely known as a breeding center for Arabian horses. The property consists of 812 acres with necessary barns and facilities for horse production. Outstanding breeding animals are to be moved to Fort Reno, Okla., and Arabian stallions will continue to be available for use by agents as in the past. Other stock, classed as surplus, will be sold under sealed bids.

• • •  
**Dr. Vawter Authority on Sheep Disease Control.**—Dr. L. R. Vawter (KSC '18), Department of Veterinary Science, University of Nevada, Reno, Nev., is cited in *The California Wool Grower* (Aug. 24, 1948, p. 5), for the splendid work he is accomplishing for the cattlemen and sheep men of his state. One observer considered Dr. Vawter one of the two outstanding sheep disease control veterinarians of the Western States.

### Colorado

**Northeastern Association.**—Officers of the newly formed Northeastern Colorado Veterinary Medical Association are Drs. F. Mendenhall, Julesburg, *chairman*; R. M. Clark, Holyoke, *vice-chairman*; and L. L. Rieke, Sterling, *secretary-treasurer*. The meetings of this group are to be bi-monthly.

s/L. L. RIEKE, *Secretary*.

### Georgia

**Southern Association.**—The South Georgia Veterinary Medical Association held its regular quarterly meeting at the City Hall in Moultrie on Dec. 1, 1948. Mr. J. L. Stephens, Georgia Coastal Plain Experiment Station, spoke on "Poisonous plants of Southern Georgia." Case reports on bracken, Dallis grass (ergot), and treadsolve (*Solanum carolinense*) poisoning were presented by Drs. H. A. Bassham, H. G. Young, and S. Shepard.

Officers elected were Drs. T. B. Sutton, *chairman*; H. A. Bassham, *vice-chairman*; and W. L. Sippel, *secretary-treasurer*.

Mrs. S. Shepard entertained the ladies at a tea.

s/W. L. SIPPEL, *Secretary*.

• • •  
**New Veterinary Journal.**—The Georgia Veterinarian, September, 1948, identifies America's newest veterinary periodical. It is an 8 by 11 in. multigram of 10 pages—"published in the interest of Better Livestock Industry Through Better Veterinary Service," by the Georgia Veterinary Medical Association, W. D. Martin, *president*; E. E. Chambers, *president-elect*; and Chas. C. Rife, *secretary-treasurer*. Dr. Rife, well-known Atlanta practitioner, is the editor with Drs. Tom Jones, T. B. Clover,

and Wm. L. Sippel as associates. The new organ has set out to bring all of the eligible veterinarians of the state into membership of the Association and to give a lift to the practice act before the legislature.

### Illinois

**Mississippi Valley Association.**—The forty-third annual convention of the Mississippi Valley Veterinary Medical Association was held Nov. 9-10, 1948, at the Hotel Pere Marquette, Peoria, Ill.

After the business session, the scientific program was presented.

Dr. A. G. Danks, College of Veterinary Medicine, Urbana: "Sterility Problems in Cattle" and "Surgical Diseases of Beef Cattle."

Dr. L. M. Hutchings, Department of Veterinary Science, Purdue University, Lafayette, Ind.: "Death Loss in New Born Pigs" and "Swine Brucellosis."

Dr. J. S. Van Wert, Hampton, Iowa: "Hybrid Hog Industry."

Dr. Roger Link, College of Veterinary Medicine, Urbana, Ill.: "New Drugs in Veterinary Medicine."

Dr. E. E. Slatter, Danville, Ill.: "Practical Usage of New Drugs."

Dr. J. A. Butterworth, Highland Park, Ill.: "Small Animal Practice."

Dr. H. C. Smith, Slouss City, Iowa: "Recent Advances in Immunology."

Dr. P. J. McGinnis, Cicero, Ill.: "Light Horse Practice."

The ladies enjoyed a varied program of planned activities and also attended the banquet with their husbands.

s/R. J. KIRKPATRICK, *Secretary*.

• • •  
**Eastern Association.**—The fall meeting of the Eastern Illinois Veterinary Medical Association was held Dec. 8, 1948, at the Hotel Tilden Hall, Champaign. Dr. L. R. Davenport, consultant in veterinary medicine, State Department of Public Health, Springfield, spoke on "The Veterinarian and Public Health"; Dr. A. G. Danks, College of Veterinary Medicine, University of Illinois, served as moderator for a symposium on large animal diseases.

s/J. O. ALBERTS, *Secretary*.

• • •  
**Chicago Association.**—The Chicago Veterinary Medical Association met Nov. 9, 1948, at The Anti-Cruelty Society. Dr. Fred Kingma, Department of Physiology, the Ohio State University, Columbus, discussed "Fluid Therapy and Streptomycin in Small Animal Practice."

s/ROBERT C. GLOVER, *Secretary*.

• • •  
**Brucellosis Control.**—In Sangamon County, where the brucellosis control plan was started Jan. 15, 1948, 630 herds have been signed up under plan A (test and disposal of reactors), 45 under plan B (retain reactors), and 179 under plan C (vaccination of calves only).

• • •  
**Personal.**—Dr. J. R. Pickard, East St. Louis, is reported to be recovering as rapidly as can be expected from an attack of canine neurotrophic (encephalitis) virus infection. Dr. Pickard has been hospitalized for several weeks

and at the climax of the illness it was necessary to resort to artificial respiration.

### Indiana

**The Brucella Germ.**—From the *Jersey Bulletin* we quote: "Dr. C. R. Donham, head of the department of veterinary science, Purdue University, has called attention to 'Crippler in Disguise,' a booklet recently released by the National Society for Crippled Children and Adults, Inc., which tells the story of the Brucella germ and the damage it does to human beings."

**Personal.**—An article concerning Dr. D. R. Welsh (IND '15), Greenfield, appeared in *Lilly SuperVISION*, magazine for supervisors of Eli Lilly and Company, Indianapolis, where Dr. Welsh has been employed for several years. Beginning with a production job, Dr. Welsh is now head of departments at Greenfield.

### Iowa

**Interstate Association.**—The Interstate Veterinary Medical Association met in the Martin Hotel, Sioux City, Nov. 18-19, 1948. Officers elected were Drs. John Dewar, Cherokee, Iowa, *president*; J. O. Buck, Sioux Falls, S. Dak., *vice-president*; E. D. McCauley, Sioux City, Iowa, *re-elected treasurer*; and H. C. Smith, Sioux City, *re-elected secretary*. After the business meeting the program was presented.

Dr. Carl Olsen, Jr., Department of Animal Pathology and Hygiene, University of Nebraska, Lincoln: "Poultry Diseases" (with illustrations).

Dr. R. B. Helming, president, Iowa State VMA, Cresco: "Practice Management."

Dr. Louis Leonpacker, Lafayette, La.: "We Practitioners and Contagious Animal Disease Control" and "Rabies in Animals."

Dr. E. G. Cole, Sioux City: "This Business of Veterinary Medicine."

Dr. A. W. Krause, Cherokee, Iowa: "Swine Practice."

Dr. E. M. Berroth, Cedar Rapids, Iowa: "Locker Plant Inspection by the Local Veterinarian."

Dr. H. E. Blester, Veterinary Research Institute, Ames, Iowa: "The Relation of Malnutrition to Animal Diseases."

Dr. D. F. Eveleth, Department of Veterinary Science, North Dakota Agricultural College, Fargo: "Avitaminosis and Urolithiasis."

The ladies were entertained at a card party, luncheon, and the banquet.

s/H. C. SMITH, *Secretary*.

### Louisiana

**Livestock Sanitary Board.**—The newly appointed Livestock Sanitary Board held its first meeting Oct. 27, 1948. Two veterinarians are on the Board—Dr. C. M. Heflin, Baton Rouge, representing the Louisiana Veterinary Medical Association, and Dr. A. V. Young, Shreveport, representing the Louisiana Aberdeen Angus Association.

**Personals.**—Dr. Allister Greig of Edinburgh, Scotland, was a recent visitor to Baton Rouge.

Dr. R. A. Huebner has been engaged by Dr.

E. P. Flower, state veterinarian, to operate the diagnostic laboratory which is being constructed.

Drs. Frank Wheeler and R. A. Huebner, representing the Louisiana Livestock Sanitary Board, and Dr. W. T. Oglesby, of the Louisiana State University, attended the annual meeting of the United States Livestock Sanitary Association in Denver, Colo.

Members of the newly appointed examining board are Drs. J. A. Goodwin, New Iberia; A. V. Young, Shreveport; W. J. Gray, Thibodaux; and H. A. Burton, Alexandria.

s/W. T. OGLESBY.

### Maryland

**State Association.**—The Maryland State Veterinary Medical Association met at the Hotel Emerson in Baltimore on Dec. 9-10, 1948. After the opening address by President J. C. Fowble, the scientific program was presented.

Dr. A. L. Brueckner, director, Livestock Sanitary Service, Baltimore: "Maryland Livestock Sanitary Service and the Practitioner."

Dr. Milton P. Sause, Baltimore: "Encephalitis in the Dog."

Dr. James V. McCahan, Downingtown, Pa.: "Cattle Practice."

Dr. A. N. Armstrong, Baltimore: "Pitfalls in Small Animal Surgery."

Dr. F. S. Wharton, Centerville: "Tuberculin Testing."

Dr. John Gadd, Towson: "Small Animal Surgery."

The motion pictures "John's Disease" and "Foot-and-Mouth Disease in Mexico" were shown. s/J. WALTER HASTINGS, Sr., *Secretary*.

### Massachusetts

**State Association.**—The regular monthly meeting of the Massachusetts Veterinary Association was held at the Hotel Statler on Nov. 17, 1948. Dr. J. F. Conlin's (M.D.) paper, "Medical Research in Massachusetts," centered about the controversial Nolen-Miles Bill. Dr. Laurence W. Goodman, Manhasset, Long Island, spoke on "Hospital Plans and Management."

Drs. J. R. Young, Wareham, and T. B. Toplitz, Pittsfield, applied for membership at this meeting.

s/C. LAWRENCE BLAKELY, *Secretary*.

### Michigan

**Southeastern Association.**—The Southeastern Michigan Veterinary Medical Society met in the Herman Kiefer Hospital in Detroit on Oct. 13, 1948. Dr. W. O. Brinker, Michigan State College, East Lansing, spoke on "Intramedullary Pinning of Fractures." Officers elected were Drs. D. J. Francisco, Detroit, *president*; W. J. Westcott, Detroit, *vice-president*; W. N. Konde, Birmingham, *secretary*; and F. D. Egan, Farmington, *treasurer*. The wives of the veterinarians organized a women's auxiliary association at this meeting.

At the November 10 meeting, Mr. Don Zorn of the Kirschner Manufacturing Company, spoke on "External Fixation of Fracture Using



the Kirschner-Ehmer Splint" (with illustrations). The ladies met to elect officers and to discuss plans for the national convention of the AVMA.

s/W. N. KONDE, *Secretary.*

**Symposium on Sanitation.**—A symposium which will include results of recent research in milk and sanitation will be held under the auspices of the Sanitation Study Section, Division of Research Grants and Fellowships, National Institutes of Health, United States Public Health Service, in the Auditorium of the U. S. Department of Commerce at Washington, D. C., on Jan. 26-27, 1949. Some of the subjects to be discussed are transmission of Q fever to man, mastitis, insecticide studies with dairy cattle, tests for pasteurization of dairy products, and many others. Research grants and fellowships will also be reviewed at this time.

s/W. L. MALLMANN, *Professor of Bacteriology and Public Health, Michigan State College.*

## Missouri

**Short Course.**—The Department of Veterinary Science, College of Agriculture, University of Missouri, held its twenty-fourth annual short course for graduate veterinarians on Nov. 15-16, 1948. The following program was presented:

Dr. C. H. Anthony, Jensen-Salsbery Laboratories, Kansas City, Mo.: "Accidental Poisonings in Animals."

Dr. W. J. Gibbons, School of Veterinary Medicine, Alabama Polytechnic Institute, Auburn, Ala.: "Hyperkeratosis or X Disease" (with illustrations) and "Large Animal Practice."

Dr. J. C. Carey, West Liberty, Iowa: "Milk Fever Complex" and "Respiratory Diseases of Cattle."

Dr. B. J. Killham, Veterinary School, Michigan State College, East Lansing, Mich.: "Brucellosis" and "Mucoid Vaccine."

Dr. H. E. Curry, state veterinarian, Jefferson City, Mo.: "How Proposed Legislation on Brucellosis will Affect the Practitioner."

s/EARL L. MUNDELL, *Secretary, Kansas City VMA.*

## New York

**City Association.**—The Veterinary Medical Association of New York City met at the Hotel Pennsylvania on Dec. 1, 1948. Dr. Mark Allam, School of Veterinary Medicine, University of Pennsylvania, spoke on "Surgical Diseases of the Canine Vagina," and Capt. Herman Tax, Office of the Port Veterinarian, New York Port of Embarkation, U. S. Army, discussed "Boarding of Pet Animals from Foreign Countries Pending the Arrival of Their Owners from Overseas."

s/C. R. SCHROEDER, *Secretary.*

**Women's Association.**—The Eastern Section of the Women's Veterinary Association met in New York City at the Hotel Pennsylvania on December 1. In the evening, members attended the regular meeting of the Veterinary Medical Association of New York City.

s/MARY K. DUNLAP.

## North Dakota

**Shipment of Calves.**—Our regulations do not permit the shipment of calves under six months of age between November 1 and April 1, except under special permit, which will not be given except in special cases, and will not be given to any dealer selling these baby calves promiscuously in this state. The permits will be used only in cases where some immigrant or breeder is shipping a consignment of livestock in which there are some calves.

s/T. O. BRANDENBURG, *State Veterinarian.*

## Pennsylvania

**Bucks Montgomery Association.**—The Bucks Montgomery Veterinary Medical Association met Nov. 10, 1948, in the Moose Home, Doylestown. Speaker of the evening was Dr. John Mills, Department of Clinical Pathology, School of Veterinary Medicine, University of Pennsylvania, who spoke on "Clinical Pathologic Cases of both Large and Small Animals."

The Dec. 8 meeting of the Bucks Montgomery Veterinary Medical Association was also held at the Moose Home in Doylestown. Dr. Guy M. Graybill, state BAI, spoke on "Brucellosis Situation and Vaccination in Pennsylvania."

s/J. G. SHUTE, *Secretary.*

**State Officers.**—Officers elected at the sixty-sixth annual convention of the Pennsylvania State Veterinary Medical Association were Drs. Roland C. Dayton, Pittsburgh, *president*; Roy D. Hoffman, Bedford, Harry B. Roshon, Reading, and H. Robert Becker, York, *vice-presidents*; E. T. Booth, Philadelphia, *re-elected treasurer*; and Raymond C. Snyder, Upper Darby, *re-elected secretary.*

s/RAYMOND C. SNYDER, *Secretary.*

**Dr. Shigley Retires.**—Dr. James F. Shigley (CORN '15), former professor of surgery at New York State Veterinary College, Cornell University, and of veterinary science in the Department of Animal Husbandry, Pennsylvania State College, retired Oct. 31, 1948. Dr. Shigley has served on the Pennsylvania State College Board of Health since 1925, and will continue to live at State College. He is a member of the AVMA and of the PVMA, having served the latter as secretary for three years and president for one year. Dr. Shigley has two brothers and a son in veterinary medicine.

**Personal.**—Dr. A. Henry Craig, Jr. (UP '32), former professor of veterinary physiology at the University of Maryland, is now a research investigator in the pharmacology section of Smith, Kline, and French Laboratories.

## Wisconsin

**Milwaukee Association.**—The Milwaukee Veterinary Medical Association met Nov. 16, 1948, in the Wisconsin Humane Society lecture hall. Drs. F. L. Gentile and Gilbert Lewis were moderators for a discussion program on general problems.

s/K. G. NICHOLSON, *Secretary.*

**Southeastern Association.**—The Southeastern Wisconsin Veterinary Medical Association met



at the Hotel Carlton in Watertown on Dec. 9, 1948. Dr. Clyde Stormont, Madison, spoke on "Recent Developments in the Study of Blood Groups in Animals."

s/ROBERT CURTIS, Secretary.

**Dr. Woelffer, Vice-President of Pabst Farms.**—Dr. E. A. Woelffer (CORN '31), formerly professor of veterinary extension at the University of Illinois College of Veterinary Medicine, has been named vice-president of the Pabst Farms, Inc., at Oconomowoc. Dr. Woelffer will have charge of the health and breeding of the livestock and will assist in administrative and supervisory work of the breeding program and artificial insemination service.

## FOREIGN

### Australia

**Seek Blowfly Immunity for Sheep.**—The Australian Royal Society for the Prevention of Cruelty to Animals has offered a reward of \$3,250 to the person or unit finding a specific means of rendering sheep immune to blowfly attack (*Calif. Wool Grower*, Oct. 12, 1948). Although the SPCA aim is to prevent the suffering caused by these pests, it also recognizes that a successful prophylactic technique would prevent losses amounting to about \$70 million annually. On the latter count, it is hopeful that sheep owners can be persuaded to make contributions that would boost the reward to over \$15,000.

### Germany

**The Veterinary Service.**—A colleague from an inland European country, caller at the AVMA office the other day, said that Germany is "split down the middle" and is not likely to have a central government for years to come. The veterinary service, however, in each of the four zones, is carrying on in the same famous way, our distinguished visitor declared. Since veterinary faculties were established in the eighteenth century, veterinary science and practice have been a veritable obsession of the German people and, in that field, they have left a heritage from which all the world profits.

**Veterinary Medical Publications.**—*The Wissenschaftlicher Dienst* of the Internationale Presse Austausch Gesellschaft M. B. H., Harvesthuder Weg 5, Hamburg 13, Germany, announces the publication of lists of important medical publications, including announcements of books, which have appeared in German medical journals in recent years. This organization will supply information concerning publication dates and prices of new publications in the field of medical journalism.

### Great Britain

**Dr. Montgomerie President of NVMA.**—Dr. Robert Francis Montgomerie (EDIN '23), has been elected president of the National Veterinary Medical Association of Great Britain and

Ireland for 1948-1949. In 1924, Dr. Montgomerie joined the staff of the School of Agriculture, University College of North Wales, where he specialized in diseases of sheep. Later he was appointed head of the veterinary section of the Wellcome Physiological Research Laboratories at Beckenham, where he was responsible for the establishment of the Wellcome Veterinary Research Station at Frant. He is now director of veterinary research in the Wellcome Foundation. Dr. Montgomerie has also served the National Cattle Breeders' Association and the Livestock Export Group.

**Commandant of the Veterinary Corps.**—Brigadier C. A. Murray, C.B.E., former director of veterinary affairs at the War Office, who is generally credited with having brought about the amalgamation of the Veterinary and Remount Departments of the Royal Army has been appointed Colonel Commandant of the Royal Army Veterinary Corps to succeed Brigadier H. S. Mosley (retired).

### Ireland

**Brucellosis Incidence Rises.**—An increasing number of cases of bovine brucellosis has been observed in Ireland during the past five years, although the introduction of strain 19 vaccine has done much to control this disease. A. D. Donnelly told a recent session of the Veterinary Medical Association of Ireland. Vaccination is advocated for heifer calves 4 months of age or older.—*From Irish Vet. J., August, 1948.*

### Turkey

**Congress of Comparative Pathology.**—The fifth International Congress of Comparative Pathology will be held in Istanbul on May 17-20, 1949. Papers may be submitted to Dr. Louis Grollet, secretary, Permanent Committee, 7 rue Gustave Nadaud, Paris 16, France. Authors, not able to attend the Congress, may have their paper read by a member of the Committee.

## VETERINARY MILITARY SERVICE

**Reserve Corps Commission.**—A commission in the Officers' Reserve Corps is not terminated by an appointment or federal recognition in the National Guard of a state. Appointments in the Organized Reserve Corps are automatically terminated only if an officer accepts appointment in the National Guard of the United States as issued by the Department of the Army. It is the responsibility of each reserve officer to notify his unit instructor or senior army instructor of any change in status affecting his reserve status.

The Bulletin of the U. S. Army Medical Department contains original articles, reviews, and news of interest to members of the Medical Department regardless of status. To receive this monthly publication, write to: The Surgeon General's Office, Attention: Editor of the Bulletin, Room 2 D-463, The Pentagon, Washington 25, D. C.

s/JOHN C. KEELE, JR., Major, U. S. Army.

## Selective Service Memorandum on Deferment of Students of Healing Arts

Local Board Memorandum No. 7 was issued by the Director of Selective Service, Washington, D. C., on Nov. 2, 1948. It announced appointment of a Healing Arts Educational Advisory Committee and outlined recommendations of the National Headquarters, based on the advice of the committee, for deferment of preprofessional and professional students in medicine, dentistry, veterinary medicine, and osteopathy to meet the nation's needs for trained personnel in these fields.

The memorandum follows:

1) *Healing Arts Educational Advisory Committee.*—(a) A Healing Arts Educational Advisory Committee has been established by the Director of Selective Service. The Committee consists of:

Dr. Donald G. Anderson, representing the Council on Medical Education and Hospitals of the American Medical Association;

Dr. Stockton Kimball, representing the Association of American Medical Colleges;

Dr. G. D. Timmons, representing the Association of American Dental Schools;

Dr. B. T. Simms, representing the American Veterinary Medical Association;

Dr. Otterbein Dressler, representing the American Osteopathic Association.

b) The purpose of this Committee is (1) to recommend to the Director of Selective Service means by which sufficient personnel may be trained in the professions of the healing arts, through the maintenance of an adequate flow of students through professional and preprofessional schools; (2) to recommend procedures by which an adequate flow of students through the professional schools might be maintained to meet the nation's needs in trained medical, dental, veterinary and osteopathic personnel; and (3) to advise the educators in the fields of the healing arts professions on problems arising through the operation of the Selective Service Act of 1948.

2) *Students in Professional Schools.*—The Committee has advised the Director of Selective Service that the national interest will require graduates of medicine, dentistry, veterinary medicine and osteopathy annually in numbers equal at least to the present level. It recommends that students properly enrolled in the professional schools of these four professions and satisfactorily pursuing full time courses leading to graduation should be permitted to continue their studies until graduation.

3) *Students in Preprofessional Schools.*—(a) This Committee also recommends that sufficient numbers of preprofessional students should be made available to maintain the freshman classes of these professional schools at present levels. To accomplish this, the Committee recommends that these professional schools select provisionally for admission, upon completing the preprofessional course to

the satisfaction of the professional school, certain students who have satisfactorily completed at least one year of the preprofessional course. These provisional admissions will continue valid until the following July 15 unless cancelled by the professional school.

b) The number of preprofessional students who are not otherwise deferrable and who have completed at least one year of preprofessional work and who may be selected, is, for the freshman class of 1949 55% of the 1948 freshman professional class; for the freshman class of 1950 62½% of the 1948 freshman professional class; and for the freshman class of 1951 100% of the 1948 freshman professional class.

c) These percentages of provisional admissions are to be reviewed by the Committee once each year and recommendations as to the numbers will be adjusted for the ensuing classes, in accordance with the demonstrated needs at that time. These recommendations will be available early enough to permit the review of individual provisional admissions by the professional schools prior to July 15.

4) *Identification of Professional Students and Preprofessional Students Provisionally Accepted.*—In order to identify to selective service local boards the professional students of medicine, dentistry, veterinary medicine and osteopathy, and the preprofessional students who have been provisionally admitted to the professional schools, the Committee has recommended that an authorized representative of the professional schools should submit, on a form designed for that purpose, (1) the names of professional students who are not otherwise deferrable under the Selective Service Act of 1948 and who have duly matriculated in their professional school and are actually pursuing a course leading to graduation in one of the specified professions; and (2) the names of preprofessional students who have completed at least one year of preprofessional study and have been provisionally accepted for entrance into the professional school upon completion of a preprofessional course to the satisfaction of the professional school.

5) *Certification of Preprofessional and Professional Students of Medicine, Dentistry, Veterinary Medicine, and Osteopathy (SSS Form No. 103).*—The form to be used by the professional schools will be Certification of Preprofessional and Professional Students of Medicine, Dentistry, Veterinary Medicine, and Osteopathy (SSS Form No. 103). A copy of this form is attached to this memorandum. All such certificates will be issued to local boards through National Headquarters and State Headquarters for Selective Service, and will constitute evidence in support of the student's claim for occupational classification. Before issuing a certificate for a preprofessional student, the professional school should secure assurance from the student that he will not obtain a similar certificate from another professional school.

6) *Failure to Satisfactorily Pursue Course of Study.*—When a student fails to pursue his

course in a manner which is satisfactory to the professional school, an authorized representative of the school will cancel the Certification of Preprofessional and Professional Students of Medicine, Dentistry, Veterinary Medicine, and Osteopathy (SSS Form No. 103) for such student and will notify the local board of such cancellation, through National Headquarters and State Headquarters of Selective Service.

## MARRIAGES

Dr. George T. Woods (KSC '46), Shelbyville, Ill., to Miss Helen Jordan, Danville, Ill., on June 20, 1948.

Dr. Ben N. Winchester (KSC '37), Hannibal, Mo., to Miss Ruth Cecelia Hemmer on July 8, 1948, in Hannibal, Mo.

Dr. Robert P. Litt (KSC '46), Chicago, Ill., to Miss Lorraine Shirley Atkins on Sept. 5, 1948.

Dr. Lester E. Fisher (ISC '43), Chicago, Ill., to Miss Elizabeth Jane, Berwyn, Ill., on Oct. 2, 1948.

## BIRTHS

To Dr. (KSC '42) and Mrs. Arthur A. Case, Columbia, Mo., a daughter on Aug. 21, 1948.

Captain (OSU '43) and Mrs. William L. Abbott, Army Medical Center, Washington, D. C., announce the birth of a daughter, Helen Elizabeth, on Sept. 7, 1948.

Dr. (ISC '46) and Mrs. L. E. Barnes, Crystal Lake, Ill., announce the birth of a daughter, Catherine Lynn, on Sept. 19, 1948.

Dr. (KSC '40) and Mrs. G. I. Case, Kewanee, Ill., announce the birth of a daughter, Leslie Eileen, Sept. 19, 1948.

Dr. (MSC '43) and Mrs. G. D. Dibble, Holt, Mich., announce the birth of their second son, Douglas Craig, on Sept. 24, 1948.

Dr. (ISC '46) and Mrs. John B. Herrick, Ames, Iowa, announce the birth of a daughter, Joan Ellyn, on Sept. 25, 1948.

To Dr. (ISC '43) and Mrs. Philip E. Smith, Ames, Iowa, a daughter, Lora Jeanne, on Oct. 2, 1948.

Dr. (ISC '41) and Mrs. N. R. Waggoner, Olin, Iowa, announce the birth of a son, Curtis Lynn, on Oct. 14, 1948.

To Dr. (CORN '36) and Mrs. C. A. Metz, Mokena, Ill., a son, David Ross, on Oct. 15, 1948.

Dr. (MSC '41) and Mrs. W. C. Young, Jr., Detroit, Mich., announce the birth of a son, William Clay, III, on Oct. 20, 1948.

Dr. (ISC '42) and Mrs. A. C. Gathman, Galva, Ill., announce the birth of a daughter on Oct. 25, 1948.

Dr. (TEX '43) and Mrs. Richard D. Macy, Whittier, Calif., announce the birth of their third child, a daughter, Nov. 19, 1948.

Dr. (MSC '40) and Mrs. E. E. Britten, Pekin, Ill., announce the birth of a daughter, Patricia.

## DEATHS

★Benedict K. Bjornson (OSU '17), 63, West Fargo, N. Dak., died late in 1948. Dr. Bjornson was a member of the North Dakota Veterinary Medical Association and of the AVMA.

Charles M. Curl (CIN '10), 60, Rushville, Ill., died Nov. 23, 1948. During his thirty-six years of service with the government, Dr. Curl aided in tuberculosis eradication and in serum work.

James N. Eagle (KCVC '10), Kansas City, Kan., died in July, 1948, of a heart attack. Dr. Eagle had been a member of the AVMA.

★Owen Howells (COLO '13), 57, Colonia Napoles, Mexico, died Aug. 3, 1948. Dr. Howells was admitted to the AVMA in 1917.

Capt. M. C. Kastner (KSC '35), Albuquerque, N. M., died Aug. 23, 1948. Captain Kastner served in the Veterinary Corps during World War II.

★Louis McClain (API '46), 24, Birmingham, Ala., died Sept. 5, 1948, of encephalitis. Dr. McClain was admitted to the AVMA in 1947.

★Oliver A. Meyer (CVC '11), 60, Alton, Ill., died on Oct. 7, 1948. Dr. Meyer was admitted to the AVMA in 1928.

★Lincoln W. Moore (CVC '09), 72, Lexington, Ill., died Nov. 11, 1948, after a lingering illness. Dr. Moore was admitted to the AVMA in 1920.

★Amos F. Nelson (CVC '02), 79, Lebanon, Ind., died Nov. 4, 1948, after an illness of several months. Dr. Nelson was a meat inspector in Chicago for two years after his graduation and then settled in Boone County, Ind., where he practiced for forty-five years. He also taught in the Indianapolis Veterinary School, was state veterinarian, and a state representative for two terms. He retired from active practice early in 1948. Dr. Nelson was a member of the AVMA for thirty-seven years.

★Victor M. Rasmussen (KCVC '16), 55, Sleepy Eye, Minn., died on Oct. 29, 1948. Dr. Rasmussen served in the Veterinary Corps during World War I and was employed by the U. S. Department of Agriculture for a short while before he started practice in Sleepy Eye. He was admitted to the AVMA in 1937.

★Claude C. Sanders (IND '16), 64, Indianapolis, Ind., died Sept. 27, 1948. Dr. Sanders was admitted to the AVMA in 1927.

★Daniel V. Scudder (CIN '13), 61, Pendleton, Ind., died on Oct. 20, 1948. Dr. Scudder was admitted to the AVMA in 1947.

★John H. Servatius (CVC '06), 65, Vernon, Texas, died on Oct. 17, 1948, after a lingering illness. Dr. Servatius was a member of the Illinois State VMA and of the AVMA.

★Floyd S. Swale (KCVC '15), 56, Minneapolis, Minn., died late in 1948. Dr. Swale was admitted to the AVMA in 1928.

Fred D. Walmsley (CORN '04), 66, River Forest, Ill., died of a heart attack on Oct. 21, 1948. Dr. Walmsley was president of Borden's Chicago division from 1928 to 1934. He had been a member of the AVMA.

★Ivor Williams (KSC '47), 38, Albuquerque, N. M., died July 9, 1948, of pulmonary edema. Dr. Williams was admitted to the AVMA in 1947.

★Indicates members of the AVMA.

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### COMING MEETINGS

Pennsylvania, University of. Annual conference of veterinarians of the School of Veterinary Medicine, Jan. 4-5, 1949. R. A. Kelsner, School of Veterinary Medicine, University of Pennsylvania, Philadelphia, Pa., dean.

New York State Veterinary College. Annual Conference for veterinarians. Jan. 5-7, 1949. W. A. Hagan, 320 The Parkway, Ithaca, N. Y., president.

Ohio State Veterinary Medical Association. Annual meeting. Deshler-Wallick Hotel, Columbus, Ohio, Jan. 5-7, 1949. F. J. Kingma, 121 E. Weber Rd., Columbus 2, Ohio.

Wisconsin Veterinary Medical Association. Annual meeting, Park Hotel, Madison, Wis., Jan. 6-7, 1949. B. A. Beach, University of Wisconsin, Madison, Wis., secretary.

Oklahoma State Veterinary Medical Association. Annual meeting. Skirvin Hotel, Oklahoma City, Okla., Jan. 10-11, 1949. Lewis H. Moe, 408 Life Sciences Bldg., Oklahoma A. & M. College, Stillwater, Okla., secretary.

California State Veterinary Medical Association. Annual mid-winter conference. San Luis Obispo, Calif., Jan. 10-12, 1949. Charles S. Travers, 16th and Mission Sts., San Francisco, Calif., secretary.

Maine Veterinary Medical Association. Annual meeting. Augusta, Maine, Jan. 12, 1949. S. W. Stiles, Falmouth Foreside, Maine, secretary.

Indiana State Veterinary Medical Association. Annual meeting. Hotel Severin, Indianapolis, Ind., Jan. 13-15, 1949. W. W. Garverick, Zionsville, Ind., secretary.

Tennessee Veterinary Medical Association. Annual meeting. Maxwell House, Nashville, Tenn., Jan. 17-18, 1949. Dr. H. W. Nance, Lawrenceburg, Tenn., secretary.

Intermountain Veterinary Medical Association. Newhouse Hotel, Salt Lake City, Utah, Jan. 17-19, 1949. M. L. Miner, Logan, Utah, secretary.

Texas State Veterinary Medical Association. Annual meeting. Texas Hotel, Fort Worth, Texas, Jan. 17-19, 1949. E. A. Grist, Box 951, College Station, Texas, secretary.

South Carolina Association of Veterinarians. Annual business meeting. Jefferson Hotel, Columbia, S. Car., Jan. 18, 1949. Dr. R. A. Mays, Columbia, S. Car., secretary.

Iowa State Veterinary Medical Association. Annual meeting. Hotel Fort Des Moines, Des Moines, Iowa, Jan. 18-20, 1949. C. C. Franks, 602 Capital City Bank Bldg., Des Moines 9, Iowa, secretary.

(Continued on page 30)



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(Continued from page 28)

Michigan State College postgraduate conference for veterinarians. Michigan State College, East Lansing, Mich., Jan. 19-20, 1949. C. S. Bryan, School of Veterinary Medicine, Michigan State College, East Lansing, Mich., dean.

Mississippi State Veterinary Medical Association. Annual meeting. Pinehurst Hotel, Laurel, Miss., Jan. 20-21, 1949. S. A. Cox, Jackson, Miss., secretary.

Symposium on Recent Research in Milk and Food Sanitation. Auditorium of the U. S. Department of Commerce, Washington, D. C., Jan. 26-27, 1949. W. L. Mallmann, professor of Bacteriology and Public Health, Michigan State College, East Lansing, Mich.

Illinois State Veterinary Medical Association. Annual meeting. Abraham Lincoln Hotel, Springfield, Ill., Jan. 26-28, 1949. A. G. Misener, 6448 N. Clark St., Chicago 26, Ill., secretary.

New Jersey State Veterinary Medical Association. Annual meeting. Hotel Hildebrecht, Trenton, N. J., Feb. 3-4, 1949. J. R. Porteus, p.o. box 938, Trenton, N. J., secretary.

Louisiana State Veterinary Medical Association. Annual meeting. Louisiana State University, Baton Rouge, Feb. 8-9, 1949. C. M. Hedlin, Baton Rouge, La., secretary.

Arkansas State Veterinary Medical Association. Annual meeting. Little Rock, Ark., Feb. 17-18, 1949. T. D. Hendrickson, Route 5, Box 422A, Little Rock, Ark., secretary.

Southeast Missouri Veterinary Medical Association. Spring meeting. Farmington, Mo., April 13, 1949. F. A. Stepp, 405 North St., Sikeston, Mo., secretary.

American Animal Hospital Association. Annual meeting. Edgewater Beach Hotel, Chicago, Ill., May 5-7, 1949. Wayne H. Riser, Box 872, Evanston, Ill., secretary.

Alabama Polytechnic Institute. Annual conference for veterinarians. Alabama Polytechnic Institute, Auburn, Ala., June 7-9, 1949. Dr. J. E. Greene, Cary Hall, A.P.I., Auburn, Ala., chairman.

American Veterinary Medical Association. Annual convention. Book-Cadillac and Statler Hotels, Detroit, Mich., July 11-14, 1949. J. G. Hardenbergh, American Veterinary Medical Association, 600 S. Michigan Ave., Chicago 5, Ill., executive secretary.

Colorado State Veterinary Medical Association. Annual meeting. Shirley Savoy Hotel, Denver, Colo., Sept. 29-30, 1949. W. P. Blake, 2410 8th Ave., Greeley, Colo., secretary.

Chief Livestock Sanitary Officials. National Assembly. The Neil House, Columbus, Ohio, Oct. 10-11, 1949. Dr. C. F. Clark, State Office Building, Lansing 13, Mich., secretary.

United States Livestock Sanitary Association. Annual meeting. The Neil House, Columbus, Ohio, Oct. 12-14, 1949. Dr. R. A. Hendershott, 1 West State St., Trenton 8, N. J., secretary.

(Continued on page 32)



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(Continued from page 30)

### **Regularly Scheduled Meetings**

Chicago Veterinary Medical Association, the second Tuesday of each month. Robert C. Glover, 1021 Davis St., Evanston, Ill., secretary.

Greater St. Louis Veterinary Medical Association, Ralston-Purina Research Building, St. Louis, Mo., the first Friday in February, April, June, and November. W. C. Schofield, Dept. of Animal Pathology, Ralston-Purina Co., St. Louis 2, Mo., secretary.

Houston Veterinary Medical Association, Houston, Tex., the first Thursday of each month. Edward Lepon, Houston, Tex., secretary-treasurer.

Keystone Veterinary Medical Association, School of Veterinary Medicine, University of Pennsylvania, Philadelphia, Pa., the fourth Wednesday of each month. Raymond C. Snyder, N. W. Cor. Walnut St. and Copley Rd., Upper Darby, Pa., secretary.

Massachusetts Veterinary Association, Hotel Statler, Boston, Mass., the fourth Wednesday of each month. C. L. Blakely, Angell Memorial Animal Hospital, 180 Longwood Ave., Boston, Mass., secretary-treasurer.

New York City Veterinary Medical Association, Hotel Pennsylvania, New York, N. Y., the first Wednesday of each month. C. R. Schroeder, Lederle Laboratories, Inc., Pearl River, N. Y., secretary.

Milwaukee Veterinary Medical Association, Wisconsin Humane Society, 4150 N. Humbolt Ave., Milwaukee, Wis., the third Tuesday of each month. Kenneth G. Nicholson, 2161 N. Farwell Ave., Milwaukee, Wis., secretary.

Jefferson County Veterinary Society, Louisville, Ky., the first Wednesday evening of each month. F. M. Kearns, 3622 Frankfort Ave., Louisville 7, Ky., secretary.

Southern California Veterinary Medical Association, the third Wednesday of each month. H. I. Ott, 10326 East Artesia Blvd., Bellflower, Calif., secretary.

Bay Counties Veterinary Medical Association, the second Tuesday of each month. George E. Martin, 530 Stockton Ave., San José, Calif., secretary.

Central California Veterinary Medical Association, the fourth Tuesday of each month. Thomas Eville, Route 1, Box 136H, Fresno, Calif., secretary.

East Bay Veterinary Medical Association, bi-monthly, the fourth Wednesday. O. A. Soave, 5666 Telegraph, Oakland, Calif., secretary.

Northern San Joaquin Valley Veterinary Medical Association, the fourth Wednesday of each month. I. N. Bohlender, Box 588, Turlock, Calif., secretary.

Peninsula Veterinary Medical Association, the third Monday of each month. E. W. Paul, Box 866, Redwood City, Calif., secretary.

(Continued on page 34)

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/ Bibliography:

1. Am. Jour. Vet. Res., Part II, Apr., 1946.
2. Proc. Soc. Exper. Biol. & Med., Oct., 1946.
3. Am. Jour. Vet. Res., July, 1946.

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(Continued from page 32)

Redwood Empire Veterinary Medical Association, the second Tuesday of every other month. Charles D. Stafford, Novato, Calif., secretary.

Sacramento Valley Veterinary Medical Association, the fourth Friday of each month. R. C. Goulding, 11511 Capitol Avenue, Sacramento, Calif., secretary.

San Diego County Veterinary Medical Association, the third Tuesday of each month. Mitchell Smith, 3740 Rosecrans Boulevard, San Diego, Calif., secretary.

Orange Belt Veterinary Medical Association, the second Monday of each month. James R. Ketchersid, 666 East Highland Avenue, San Bernardino, Calif., secretary.

Michigan, Southeastern Veterinary Medical Society. Herman Klefer Hospital, Detroit, Mich., the second Wednesday of each month from October through May.

• • •

### Foreign Congresses

Seventh Pacific Science Congress. New Zealand, Feb. 2-22, 1949. Mr. Harold J. Coolidge, 2101 Constitution Ave., Washington 25, D. C., executive secretary.

Fifth International Congress of Comparative Pathology. Istanbul, Turkey, May 17-20, 1949. Dr. Louis Grollet, 7 rue Gustave Naduad, Paris 16 e, France, general secretary of permanent committee.

Fourteenth International Veterinary Congress. London, England, Aug. 8-14, 1949.

*General Secretary, Permanent Committee:* Prof. L. de Bleeck, Kwartellaan 51, The Hague, Netherlands.

*General Secretary, Organizing Committee:* Mr. W. G. R. Oates, 9 Red Lion Square, London, W. C. 1, England

*Secretary, United States Committee:* J. G. Hardenbergh, 600 S. Michigan Ave. Chicago 5, Ill.

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The most northern dog show yet recorded was held at Anchorage, Alaska, on Nov. 28, 1948. It was sponsored by the Alaska Kennel Club for all breeds and judged under American Kennel Club rules. Capt. Will Judy, Chicago, editor of *Dog World Magazine*, flew to Alaska to judge the show.

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 Keeney, E. L. and associates.  
Bull. Johns Hopkins Hospital  
77:422, 1945

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### Veterinary History

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*Testimony Based on Roentgenograms.*—The Supreme Court of Mississippi has ruled that the testimony of a physician based upon a roentgenogram is not invalidated on the ground that the witness is not technically qualified as a roentgenologist. The reading of roentgenograms was regarded as a part of general medical knowledge.—*From J. Am. M. A., Oct. 1948.*



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**No. 2261**—0.5-Gm. tablets (slotted) in bottles of 100 and 1,000.

**No. 2267**—¼-lb. and 1-lb. bottles of powder.

1. J. Am. Vet. M. A. 104:274, May 1944. 2. Cornell Vet. 31:170, April 1946. 3. J. Am. Vet. M. A. 106:7, Jan. 1945. 4. J. Am. Vet. M. A. 107:236, Oct. 1945. 5. N. Am. Vet. 27:564, Sept. 1946. 6. Vet. Med. 42:170, May 1947. 7. J. Am. Vet. M. A. 108:89, Feb. 1946.

VETERINARY DIVISION



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(Sulfamerazine 60 gr., Sulfathiazole 90 gr. and Sulfanilamide 90 gr.)

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(Urea 207 gr., Sulfanilamide 33 gr. and Sulfathiazole 5 gr.)

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### SULFATHIAZOLE BOLUSES

240 Grains

100's .....	\$ 15.00
1000's .....	135.00

### SULFANILAMIDE BOLUSES

240 Grains

100's .....	\$ 7.00
1000's .....	60.00

### SULFAMERAZINE TABLETS

30 Grains

500's (in drum) .....	\$ 30.00
1000's (in drum) .....	55.00

60 Grains

500's (in drum) .....	\$ 55.00
1000's (in drum) .....	105.00

### SULFAGUANIDINE TABLETS

30 Grains

1000's (in drum) .....	\$ 32.00
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60 Grains

1000's (in drum) .....	\$ 62.00
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### SULFATHIAZOLE TABLETS

60 Grains

1000's (in drum) .....	\$ 39.00
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### SULFANILAMIDE TABLETS

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(All Boluses packed in boxes of 50's.)

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#### Wanted—Positions

Position wanted by June, 1949, Iowa State College graduate, veteran, 31, married, white, Protestant. I desire an assistantship leading to partnership in, or full ownership of, a busy small animal practice. Will leave on long term basis if desired. Prefer southern states or east coast. References and personal interview at your convenience. Address "Box C 5," c/o Journal of the AVMA.

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Two small animal practitioners with best experience desire to buy or lease practice in Midwest. Give ample details. Address "Box B 1," c/o Journal of the AVMA.

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Veterinarian, California license. Operate small animal hospital. Salary and percentage. State age, experience, send picture. Write Dr. B. J. Elander, Arizona Street Veterinary Hospital, San Diego, Calif.

Assistant for mixed practice in northwest Oregon. Salary and percentage. Address "Box C 7," c/o Journal of the AVMA.

Assistant for modern small animal hospital with opportunity for eventual partnership or ownership. Send qualifications and photograph. Address "Box C 2," c/o Journal of the AVMA.

Veterinarian for mixed animal practice as an assistant. Write details in first letter. Address Dr. Ernest W. Hogg, 178 N. Franklin Street, Wilkes-Barre, Pa.

Very attractive proposition for an experienced small animal veterinarian. One who is proficient in medicine and surgery and has initiative necessary. This is an opportunity for the right man to become a partner in a small animal hospital. Small or large investment, as desired. The man is of greater importance than the initial investment. Include all information in first letter. Address "Box C 8," c/o Journal of the AVMA.

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FOR SALE—Lucrative mixed practice in thickly populated area of southwest Texas. Wonderful location on heavily traveled highway. Price reasonable; includes only real estate, drugs, and equipment. No good will price added. Address "Box C 1," c/o Journal of the AVMA.

FOR SALE—Mixed practice at edge of large midwestern city. Thriving country practice with yet greater possibilities. Busy, modern, small animal hospital. Fifty kennels, 35 large shaded runs. Excellent reputation. \$27,500 includes lovely modern home close by, double garage, 1½ acres. On main highway. \$5,000 down, convenient terms. Address "Box C 4," c/o Journal of the AVMA.

(Continued on page 42)

**LIQUID  
GERMICIDAL  
DETERGENT**  
*For*  
**VETERINARY USE**



**DISINFECTING AND CLEANSING**

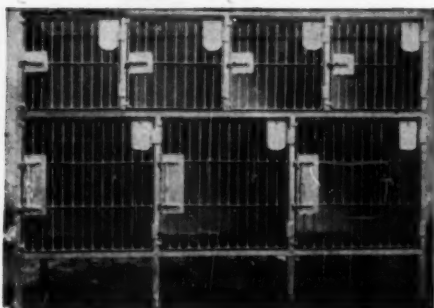
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An effective cleansing and emulsifying agent combining the detergent action of soap with the antibacterial properties of the highly effective, non-irritating germicide, Phemerol, which provides cleansing action as well as disinfecting properties in a single preparation.

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Guaiacol .....	8%
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Cresol .....	20%
Oil Camphor .....	25%
Oil Eucalyptus .....	3%
Saponified, oleaginous base .....	q. s.

Available in bottles of one pint and one gallon.



THE S. E. MASSENGILL COMPANY

BRISTOL, TENN.-VA.

NEW YORK KANSAS CITY SAN FRANCISCO

**Veterinary Division**

(Continued from page 40)

**FOR SALE**—Practice established thirty-five years in large northwest coast city. Seventy-five per cent small animals, 25 per cent large animals. Ideal for 2 man partnership. Seventy kennels, concrete runs, 100 ft. frontage. Yearly gross \$55,000. Full price \$45,000 includes all assets. Prefer payment in full, but will take 1/2 cash and balance at 5 per cent. Modern home 3 miles from hospital available if desired. Address "Box C 6," c/o Journal of the AVMA.

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For rent or sale February 1, small animal practice established for thirty years in Wheaton, Illinois. Includes hospital and all equipment. For information write Dr. Harry Caldwell, Wheaton, Illinois.

Wanted to rent or lease equipped veterinary hospital in good location. Established for thirty years. Address "Box C 3," c/o Journal of the AVMA.

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- 1) "The brain is the least used muscle of the body."
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- 3) "Then we have Springfield, the birthplace of Abraham Lincoln." Competitive examinations for jobs on the air lines of communications seem to be in order.

A cow has about five times as many taste buds on her tongue as man has, and can out-taste rings around the most fastidious gourmet.—*Science Digest*.

# Now for Veterinary Use— **PYRIBENZAMINE<sup>®</sup>**

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This potent antihistamine, PYRIBENZAMINE Hydrochloride, has brought quick relief from allergic symptoms in most cases.

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Intravenous treatment is indicated for toxic symptoms presumably due to excess histamine following retained placentae.

<sup>1</sup>Chavance, J. Vet. Med. 41: (1946) 199-201

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Veterinary Division

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FILL OUT THIS CONVENIENT ORDER FORM AND MAIL TODAY

GOSHEN LABORATORIES, Inc., Goshen, N. Y.—Please send me the following PYRIBENZAMINE:

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## Parenteral Use



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Indicated in the treatment of

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Available in both prepared solution and soluble powder forms

## Bi-Sulfa Solution

**(Nitrogenized)**

contains 6% each of *Sulfathiazole sodium* and *Sulfapyridine sodium* which supplies 12% combined sulfa solution for parenteral administration.

*Dosage: Horses and cattle 0.5 to 0.75 cc.; swine and dogs 1 cc. per pound body-weight, administer intravenously or peritoneally.*

*Supplied in: Carton 6, 250-cc puncture sealed bottles.....\$9.00*

This combination of synergistic sulfonamides is also available in form of

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containing 7.5 grams each of *Sulfathiazole sodium* and *Sulfapyridine sodium* in a 60-cc. bottle, supplying 25% combined sulfa solution for parenteral administration, which equals 125 cc. of a 12% solution.



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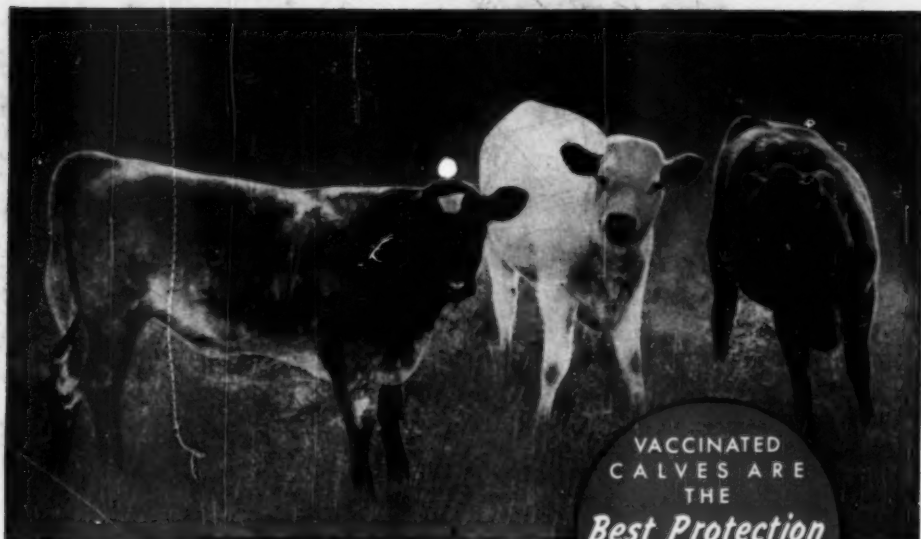
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